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GRADE 2 MATH PRACTICE WORKBOOK

Achievement First Elementary Math

Practice Workbooks - Achievement First Elementary Math – Grade 2

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Workbook A

2.MD.A.1 - Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

1. Use **one** centimeter cube to measure the length of this marker. How many centimeters long is the marker?

_____

2. Marta is trying to measure this piece of string. Help her find the length of the string, in centimeters.

_____cm

3. Circle Yes or No to tell if each measure tells the length of the line.

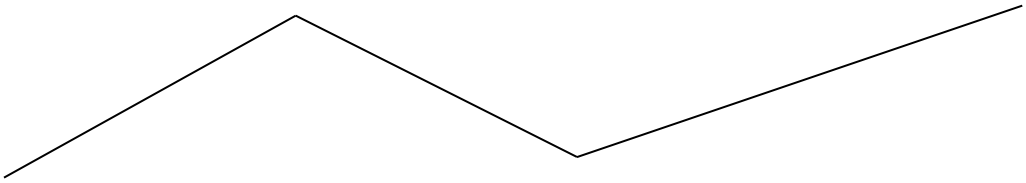
a.		6 centimeters	Yes	No
b.		3 centimeters	Yes	No
c.		4 centimeters	Yes	No
d.		5 centimeters	Yes	No

4. Circle the best unit to measure each object.

The length of a soccer field: **centimeter** **meter**

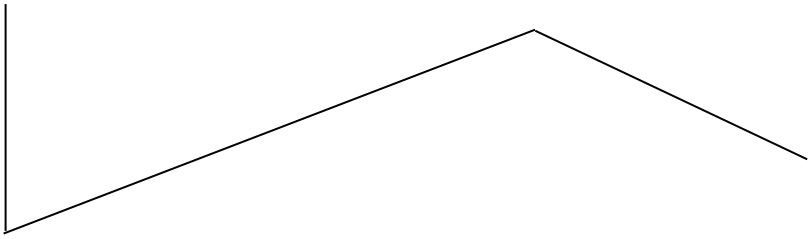
The length of a pencil: **centimeter** **meter**

5. Measure the length of the line to the nearest inch.



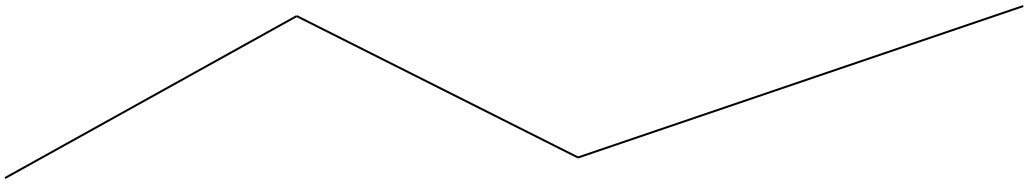
Total length: _____

6. Measure the length of the line to the nearest inch.



Total length: _____

7. Measure the length of the line to the nearest inch and then the nearest cm.

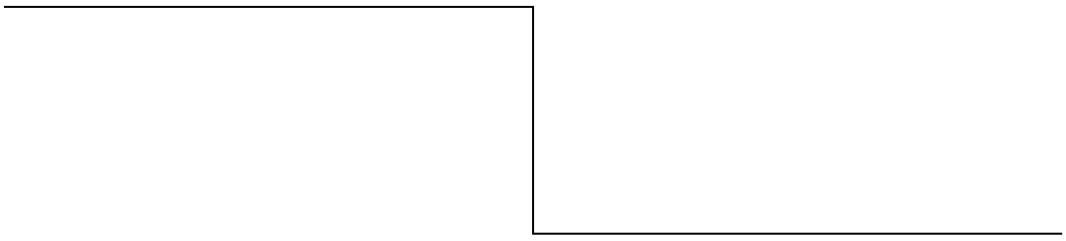


Total inches: _____ Total centimeters: _____

8. Circle the best unit to measure each object.

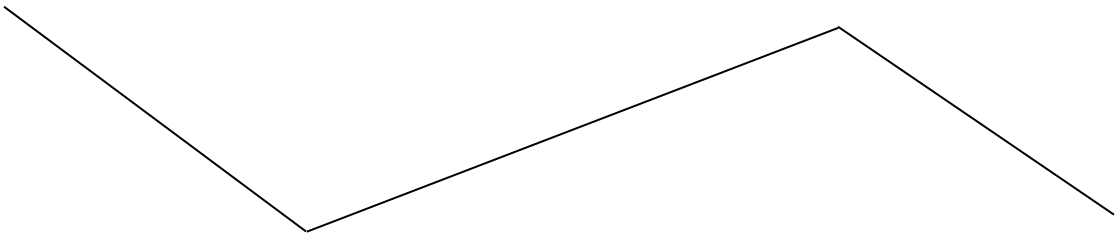
The height of a locker:	**inch**	**foot**
The length of a marker:	**yard**	**inch**

9. Measure the length of the line to the nearest inch.



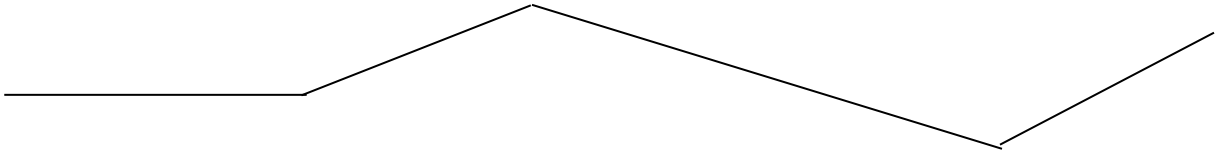
Total length: _____

10. Measure the lines in inches and in centimeters



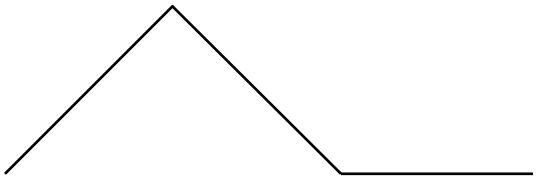
Inches: _____ Centimeters: _____

11. Measure the line to the nearest inch.



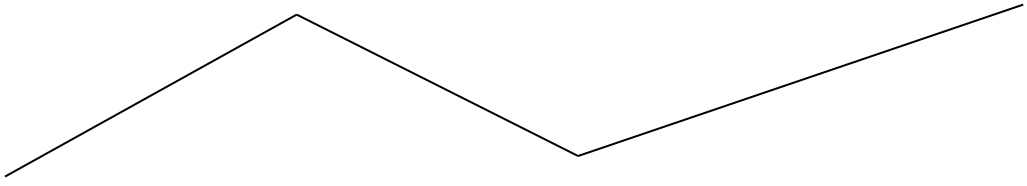
Total length: _____

12. Use an inch ruler to measure the total length:



Total length: _____

13. Use a ruler to measure the length of this line to the nearest centimeter and the nearest inch.



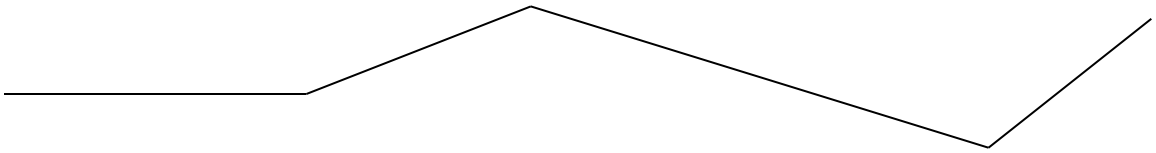
Total inches: _____ Total centimeters: _____

14. Circle the best unit to measure each object.

a. The length of a book: **yard** **inch**

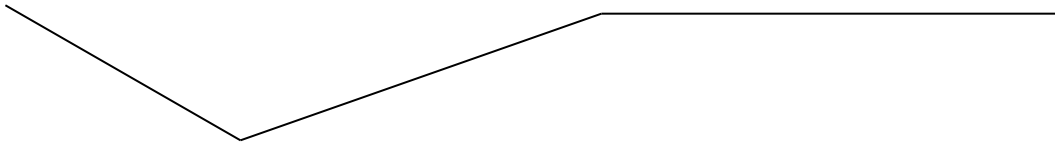
b. The perimeter of the classroom: **yard** **foot**

15. Use a ruler to measure the length of this line to the nearest centimeter and the nearest inch.



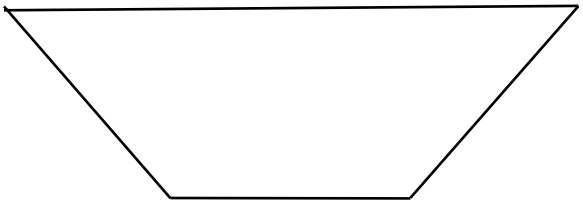
Total inches: _____ Total centimeters: _____

16. Use a ruler to measure the length of this line to the nearest centimeter and the nearest inch.



Total inches: _____ Total centimeters: _____

17. Use an inch ruler to measure the total length of the shape below:



Total Length: _____

2.MD.A.2 – Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

Measure the lines in inches and centimeters. Round the measurements to the nearest inch or centimeter.

1.

_____ cm _____ in

2.

_____ cm _____ in

3. 

_____ cm _____ in

4.

_____ cm _____ in

5. a. Did you use more inches or more centimeters when measuring the lines above?

_____

b. Write a sentence to explain why you used more of that unit.

_____

_____

i

6. Draw lines with the measurements below.

   a. 3 centimeters long

   b. 3 inches long

7. Thomas and Chris both measured the crayon below but came up with different answers. Explain why both answers are correct.

Thomas: 8 cm

Chris: 3 in

Explanation: _____

_____

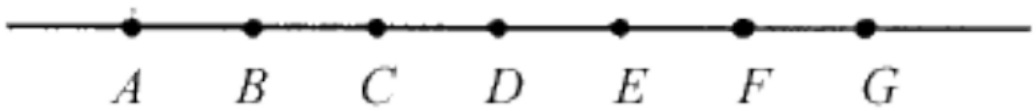
_____

_____

ii

2.MD.A.4 - Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

In the figure below, the points labeled A through G are spaced evenly along the line. Use the figure to answer questions 1 and 2



1. Use your centimeter ruler to help you answer this question: Which distance below is the longest?

    a. From A to D

    b. From B to F

    c. From C to G

    d. From B to G

2. Using the same figure, which distance is the shortest?

    a. From C to D

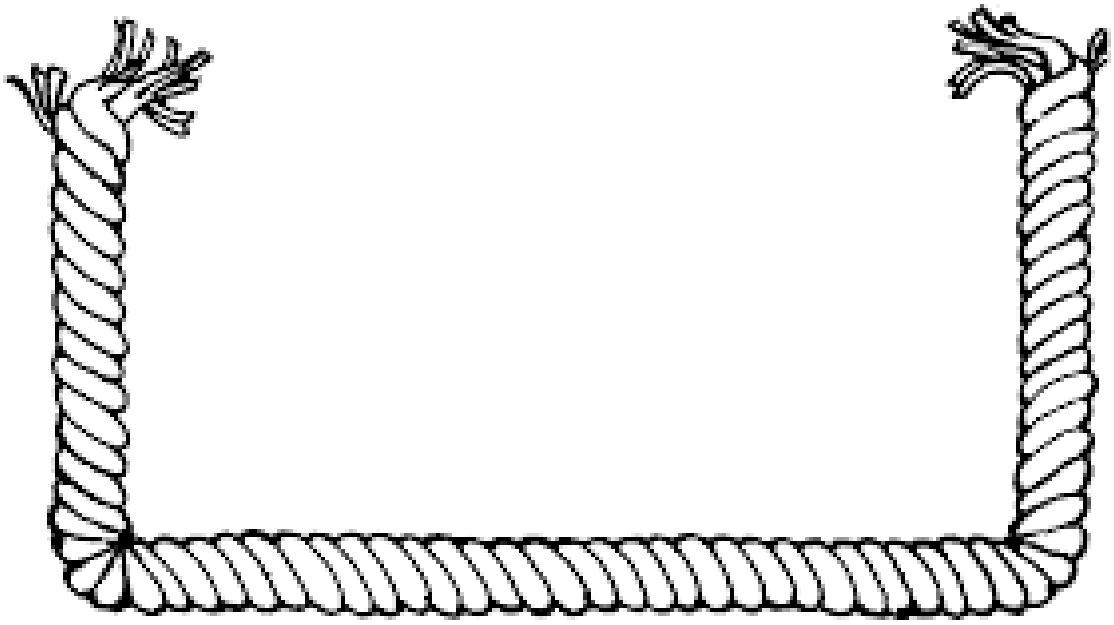
    b. From B to D

    c. From B to G

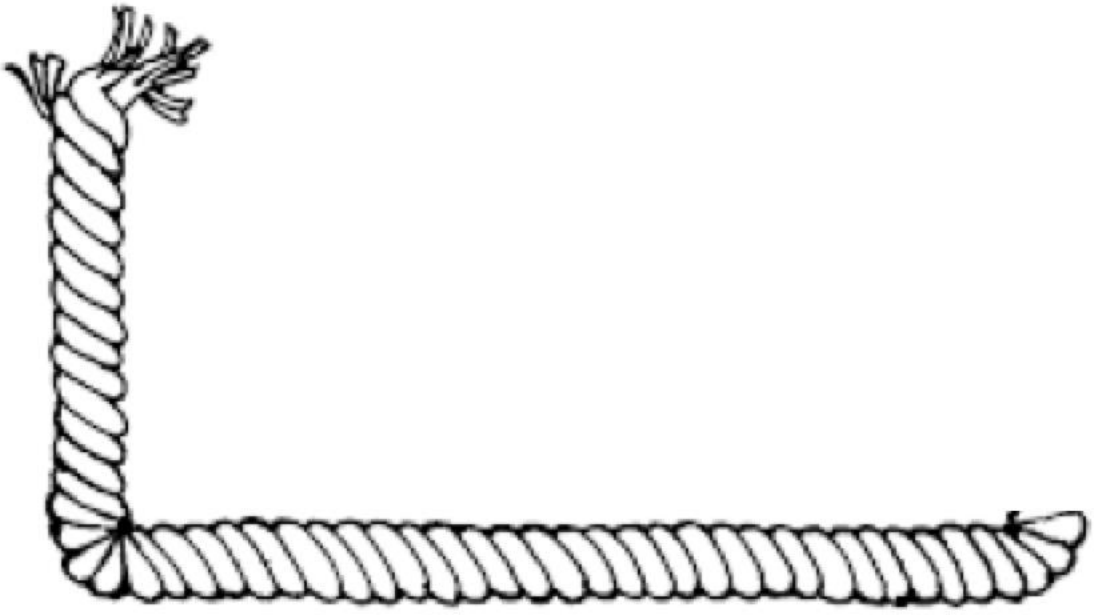
    d. From A to C

3. Measure each scarf to the nearest inch.

Scarf A: _____



Scarf B: _____



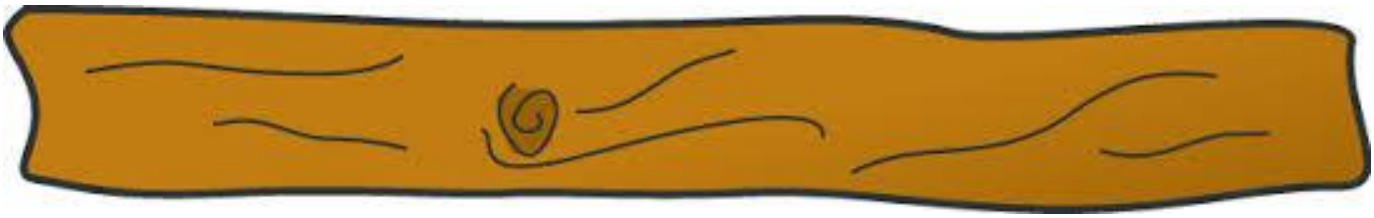
How much longer is scarf A than scarf B? _____

4. How long is the board? Measure to the nearest centimeter.

_____

How much longer would the board need to be in order to be 20 centimeters long?

_____



5. How much shorter in inches in the eraser than the crayon?

_____ inches

6. Tim has a piece of yarn that is 3 inches long. Which piece of yarn is 1 inch shorter than Tim's yarn?

A. 

B. 

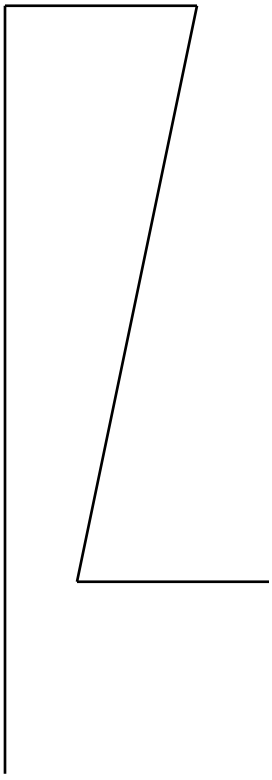
C. 

D. 

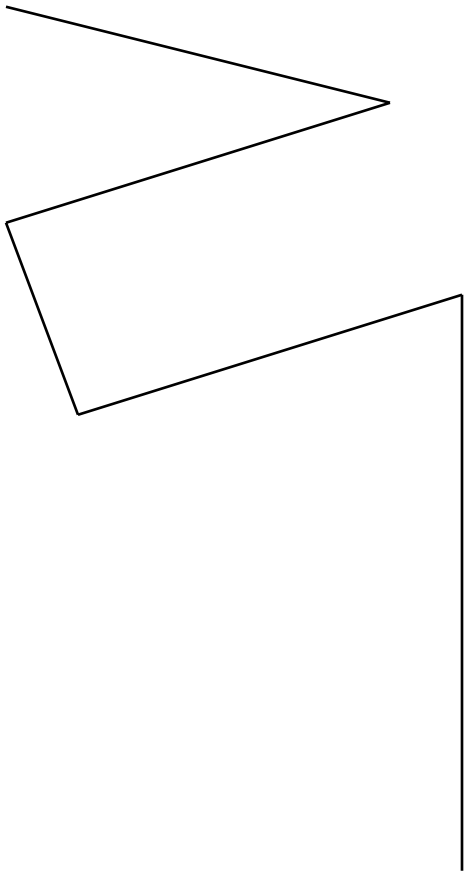
7. What is the difference in the lengths of the two lines below? Measuring using inches.

_____ inches

Line A



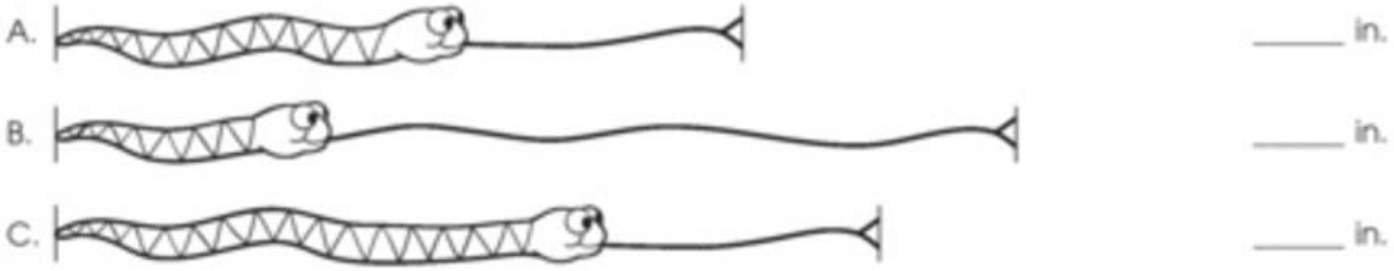
Line B



8. How much longer, in centimeters, is the pencil than the key?

_____

9. Use an inch ruler to measure each snake to the nearest inch.



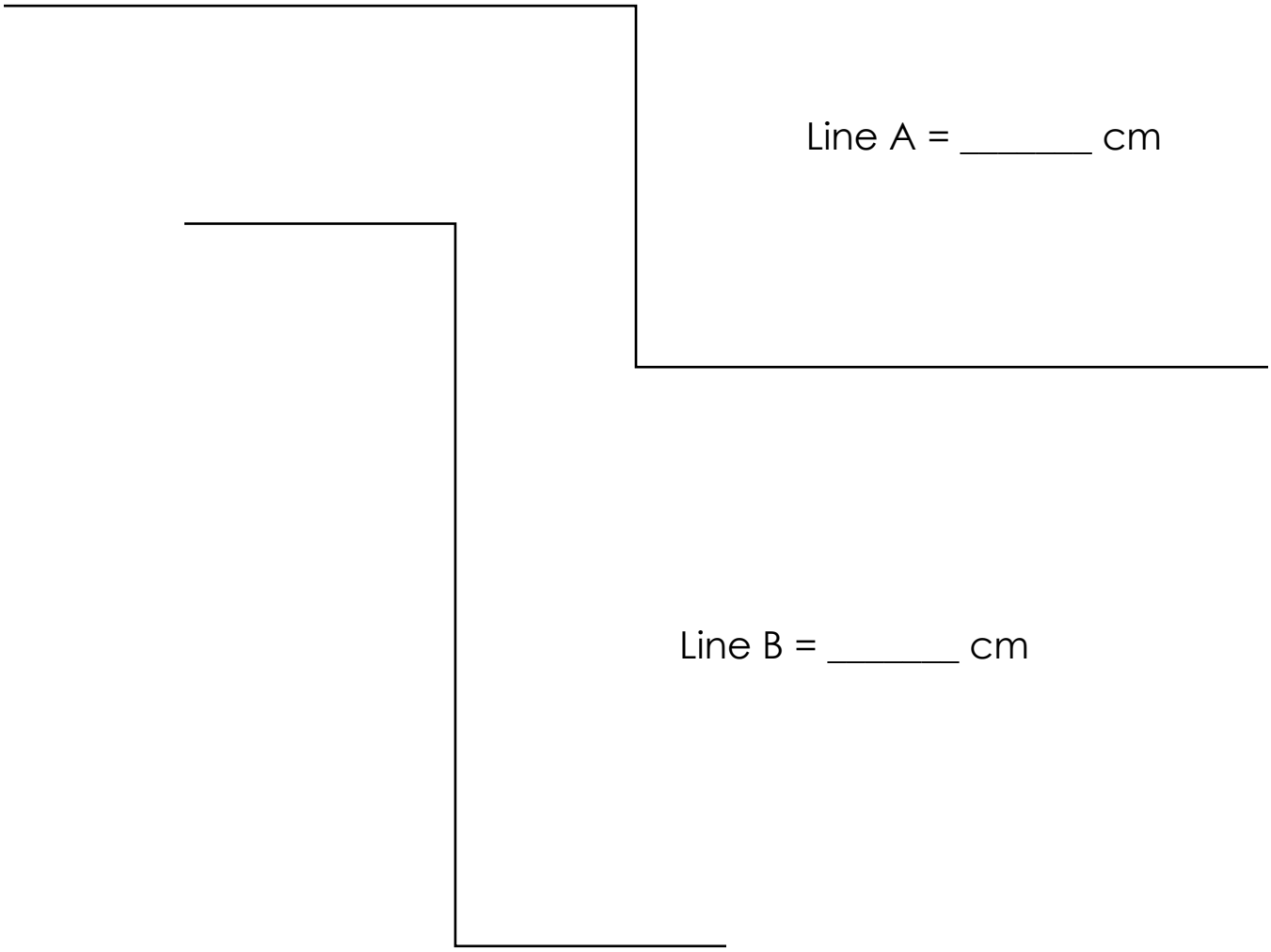
How much longer is Snake A than Snake B? _____

How much shorter is Snake A than Snake C? _____

How much longer is the longest snake than the shortest snake?

_____

10. Measure each line to the nearest centimeter.



Line A = _____ cm

Line B = _____ cm

Which line is longer? _____

How much longer?_____

11. Use a centimeter ruler to measure the height of each flower to the nearest centimeter.

Flower A Flower B

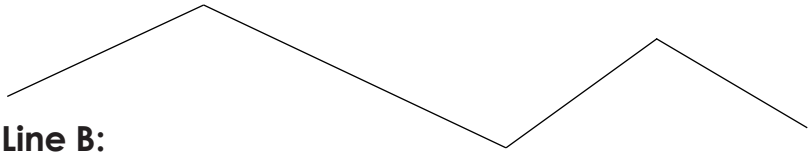
How much shorter is Flower A than Flower B?

_____

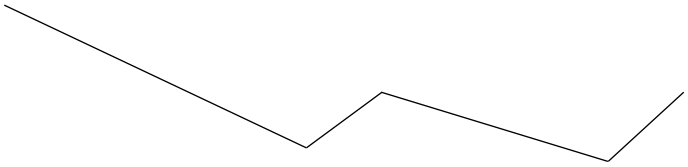
12. How much longer is Line B than Line A?

13. How much longer is line A than line B? Measure to the nearest centimeter.

Line A:



Line B:



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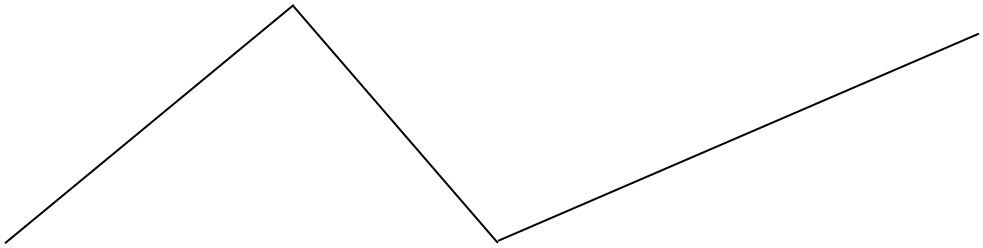
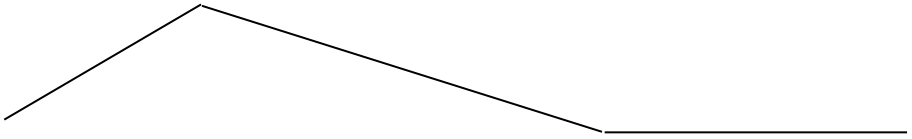
14. Use a ruler to measure the lines to the nearest inch.

Line G



Total length: _____

Line H



Total length: _____

Which line is longer? _____ How much longer? _____

15. Measure each line and write the length. Then complete the comparison sentence.

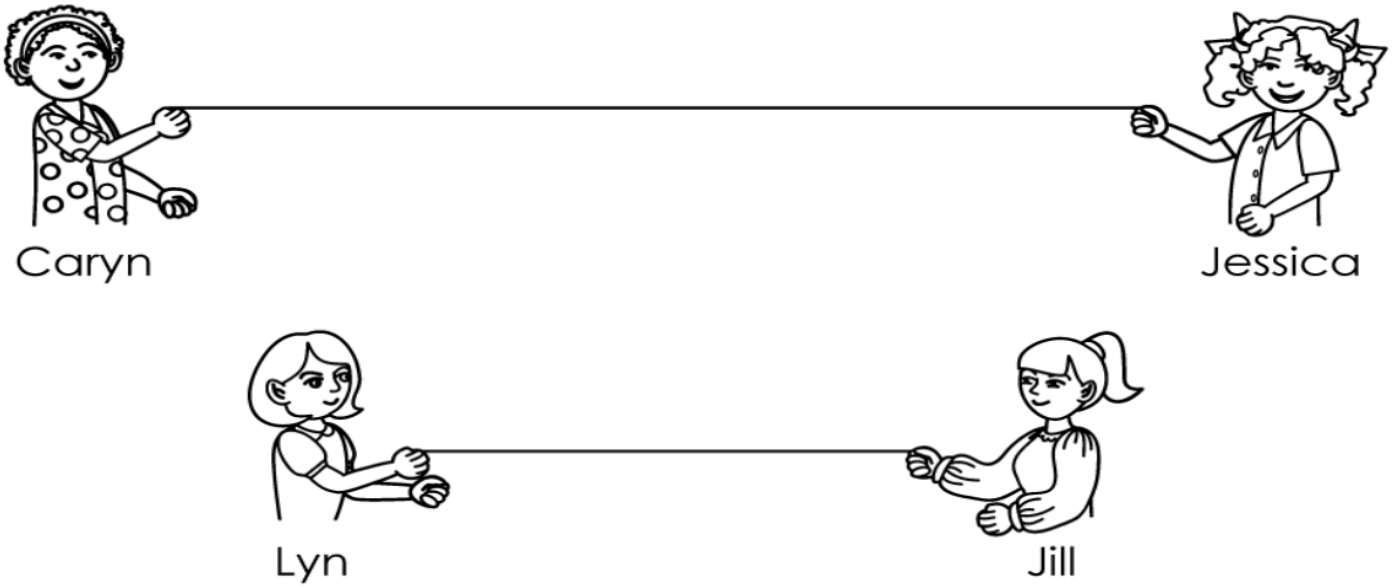
Line A _____

Line B _____

Line A measured about _____ cm. Line B measured about _____ cm.

Line A is about _____ cm longer than Line B.

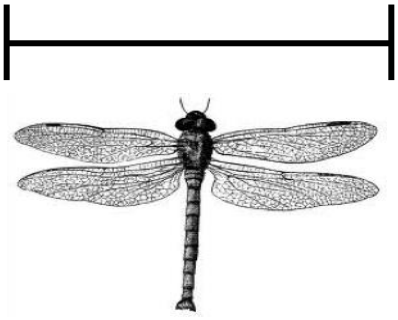
16. How many inches long is each string? How much longer is Caryn and Jessica's string than Lyn and Jill's string?

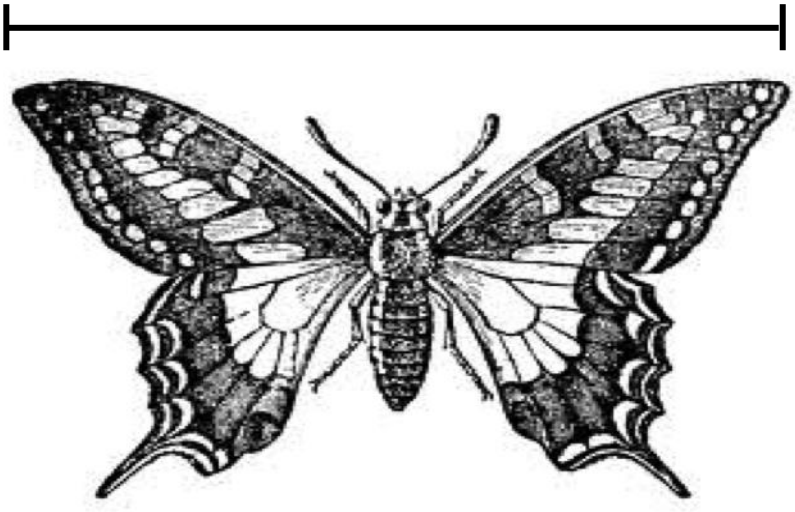


Caryn and Jessica's string _____ Lyn and Jill's string _____

Caryn and Jessica's string is _____ inches longer than Lyn and Jill's string.

17. The lines show the wingspan of a dragonfly and a butterfly. How many centimeters longer is the butterfly's wingspan than the dragonfly's wingspan?





_____ centimeters longer

18. How much longer is A than B in inches?

A.

B.

_____ inches longer

19. How much longer is the longer snake than the shorter snake, in inches?

20. How much shorter is the eraser than the key, in centimeters?

Workbook B

2.OA.B.2 - Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

Activity: BUILDING TOWARD FLUENCY Materials: Whiteboard or chart paper and markers, empty number line or cubes lined up to form a number path (alternating colors every 5), list of expressions ready to write up on the board: 4 + 10/ 4 + 12/ 4 + 22/ 8 + 20/ 8 + 29. Standard: 2.OA.B.2 Illustrative Mathematics, Building Toward Fluency	Directions: Write the expression on the board or chart paper. Start with 4+10. Ask students to describe their strategy for solving the problem. Choose one or more students to explain their strategy to the class. Represent each strategy on the board using the number line or magnetic cubes.Once the student's strategy is understood by the class, continue with the next sum.
Activity: HITTING THE TARGET NUMBER Materials: Number cards labeled 1-10 Standard: 2.OA.B.2 Illustrative Mathematics, Hitting the Target Number	Directions: Begin by playing the game as a whole class to demonstrate the rules and for students to illustrate the range of possible strategies. Have a student pick five number cards from the cards labeled 1 through 10. Then, have another pick a "Target Number" between 10 through 20. Students must add and/or subtract two or more of the five number cards to arrive at the "target" number. As students present the different number combinations for the "target" number, write their expressions on the board and have them explain how they were able to mentally come up with the solution. As students explain ther reasoning, name the strategies they used. For example, look for students making fives (e.g., 6 + 8 = 5 + 1 + 5 + 3 = 10 + 4 = 14) and tens (9 + 8 = 10 + 7), and using known facts (e.g., 8 + 8 is 16 so 8 + 7 is one less than 16) to encourage flexible thnking about the relationship among the facts When students understand how the game works, they can play in pairs, checking each other's solutions.
Activity: TAKE OUT A PART: NUMBERS WITHIN TEN Materials: None Notes:Taking out 1 prepares students for adding 9. The students make a ten, adding 9 and 6 by adding 9 and 1 and 5. Taking out 2 prepares students for adding 8. The students make a ten, adding 8 and 6 by adding 8 and 2 and 4. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 3	Directions: T: Let's take out 1 from each number. I say 5. You say 1 + 4. T: Great ready. 5. S: 1 + 4. T: Now, let's take out 2. If I say 6, you say 2 + 4. T: 3. S: 2 + 1. Continue with the following possible sequence: 5, 10, 4, 7, 9, 8, and 6
Activity: PAIRS TO MAKE TEN WITH NUMBER SENTENCES (2 minutes) Materials: (S) Personal white boards Notes: This is a foundational skill for mastery of sums and differences to 20. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 3	Directions: T: I'll say a number and you write the addition to make ten on your personal white board. T: 5. Get ready. Show me your board. S: (Show 5 + 5 = 10) T: 8. Get ready. Show me your board. S: (Show 8 + 2 = 10.) Continue with the following possible sequence: 9, 1, 0, 10, 6, 4, 7, and 3. T: What pattern did you notice that helped you solve the problems? S: You can just switch the numbers around! -> If you say 8 and the answer is 8 + 2 = 10, then I know that when you say 2 the answer will be 2 + 8 = 10. -> The numbers can switch places!

Activity: DOUBLES (1 minute) Materials: None Standard: 2.OA.B.2 EngageNY, Module 3, Lesson 8	Directions: T: I'll say a doubles fact. You tell me the answer. Wait for my signal. Ready? T: 5 + 5. S: 10. T: 3 + 3. S: 6. Continue in this manner with 2+2/ 4+4/ 6+6/ 7+7/ 8+8/ 9+9/ 10+10.
Activity: RELATED FACTS WITHIN 20 (2 minutes) Materials: None Standard: 2.OA.B.2 EngageNY, Module 3, Lesson 8	Directions: T: I say, "10 - 6". you say, "6 + 4 = 10". Wait for my signal. Ready? T: 8 - 3. S: 3 + 5 = 8. T: 13 - 7. S: 7 + 6 = 13. T: 11 - 8. S: 8 + 3 = 11. T: 15 - 9. S: 9 + 6 = 15. Continue in this manner for two minutes.
Activity: BREAK TEN IN TWO PARTS (5 minutes) Materials: (S) One stick of 10 linking cubes with a color change after the fifth cube Notes: Fluency with the bonds of numbers within 10 is one of the most important foundational skills. By starting at the concrete level, students quickly re-engage with their prior knowledge of these bonds to prepare for lesson content Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 1	Directions: T: Show me your 10 stick. S: (Show.) T: Hide it behind your back. I will say the size of one part. Break that part off in one piece. Then without peeking, see if you know how many are in the other part. T: Ready? S: Yes! T: Break off 2. No peeking. At the signal, tell how many are in the other part. (Give signal.) S: 8. T: Show your parts and see if you are correct. S: It's 8. T: What parts are you holding? S: 2 and 8. T: What's the whole? S: 10. (Continue with the following possible sequences: 3 and 7, 1 and 9, 4 and 6, and 5 and 5. Draw the bond and continue with the remaining bonds at an ever-quickening pace.) T: Tell your partner what pattern or strategy helped you find the missing part when you couldn't peek at how many were left.
Activity: MAKE TEN BY INDENTIFYING THE MISSING PART (4 minutes) Materials: (S) Personal white boards Notes: Students need this skill as they add 8 and 6 using the ten and subsequently add 18 and 6 or 80 and 60. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 2	Directions: T: If I say 9, you say 1, because 9 needs 1 to be 10. T: Wait for the signal, 5. S: 5. (Continue with the following possible sequence: 8, 2, 9, and 1.) T: This time I'll say a number and you write the addition sentence to make ten on your personal white board. T: 0. Get ready. Show me your board. S: 0 + 10 = 10. T: 10. Get ready. Show me your board. S: 10 + 0 = 10. Continue with the following possible sequence: 3, 7, 6, and 4. T: Turn and explain to your partner what pattern you noticed that helped you solve the problems. S: First, you said 0 and the answer was 0 + 10 = 10; next, you said 10 and the answer was 10 + 0 = 10. The numbers switched places!
Activity: TAKE FROM TEN (5 minutes) Materials: (S) Personal white boards Notes: Take from Ten develops the automaticity necessary to subtract fluently from the ten when subtracting from the teens. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 4	Directions: T: When I say 1, you say 9, because the game is to take the number I say from 10. Ready? 2. S: 8. Continue with the following sequence: 3, 6, 5, and 9. T: This time, after you say how many are left, write the number sentence on your personal white board. 5. S: 5. S: (Write the number sentence on their boards.) T: Show the number sentence. S: (Show 10 – 5 = 5.) Continue with the following possible sequence: 7, 8, 6, 9, and 4.

Activity: MAKE A TEN TO ADD (6 minutes) Materials: None Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 4	Directions: T: Let's make ten to add. I say 9 + 2, and you say 9 + 2 = 10 + 1. Ready? 9 + 2. S: 9 + 2 = 10 + 1. T: Answer? S: 11. T: 9 + 5. S: 9 + 5 = 10 + 4 T: Answer? S: 14. Continue with the following possible sequence: 9 + 7/ 9 + 6/ 9 + 8/ 8 + 3/ 8 + 7/ 7 + 4/ 7 + 6.
Activity: TAKE FROM TEN (3 minutes) Materials: None Notes: This activity builds fluency when subtracting from ten when the subtrahend is greater than the ones digit. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 5	Directions: T: When I say 1, you say 9. 10 – 1 = 9. Ready? 2. S: 8. T: What's the number sentence? S: 10 – 2 = 8. Continue with the following sequence: 7, 4, 9, 0, 5, and 8
Activity: TAKE FROM THE ONES (4 minutes) Materials: None Notes: As students realize that at times they have enough ones to subtract, they then become aware that sometimes they do not and must take from the ten. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 5	Directions: T: Let's take from the ones. 5 – 3 =__ . S: 2. T: 15 – 3 =__ . S: 12. Continue with the following possible sequence: 6 – 2/ 16 – 2/ 8 – 4/ 18 – 4/ 4 – 2/ 14 – 2/ 7 – 5/ 17 –5/ 9 – 6/ 19 – 6/ 7 – 3/ 17 – 3/ 8 – 5/ 18 – 5/ 9 – 5/ 19 – 5/ 9 – 2/ 19 – 2.
Activity: TAKE FROM 20 (4 minutes) Materials: (S) Personal white boards Notes: This exercise will give students practice with making ten and applying it to multiples of 10. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 6	Directions: T: Take the number I say from 10. I say 1, you say 9. Then write the number sentence and wait for my signal to show it. T: 7. S: 3. (Write number sentence.) T: Show your personal white boards. S: (Show 10 – 7 = 3.) Continue with the following possible sequence: 8, 6, and 9. T: This time instead of taking from 10, let's take from 20. Ready? 1. S: 19. (Write number sentence.) T: Show your personal white board. S: (Show 20 – 1 = 19.) Continue with the following possible sequence: 3, 2, 5, 0, 6, 8, 7, and 9.

Activity: BASIC FACTS ARE TOOLS (5 minutes) Materials: (T) Rekenrek Notes: This activity emphasizes the presence of the basic fact. The Rekenrek provides visual support, enabling students to see the structure of ten. For example, 8 + 3 is seen as 8 + 2 + 1. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 6	Directions: T: Our basic fact, or tool, is 8 + 2. 8 + 2 is...? S: 10. T: 8 + 3 is...? (Show the numbers on the Rekenrek each time.) S: 10 + 1. T: 8 + 7 is...? S: 10 + 5. (Continue with the following possible sequence: 9 + 5, 9 + 4, and 9 + 8.) T: Our new basic fact, or tool, is 10 – 8. 10 – 8 is...? S: 2. T: 12 – 8 is...? (Show the numbers on the Rekenrek each time.) S: 2 + 2. T: 15 – 8 is...? S: 2 + 5. (Continue with the following possible sequence: 12 – 9 and 15 – 9.)
Activity: TAKE FROM 20 (5 minutes) Materials: (S) Personal white boards Notes: Students use personal white boards to see the connection between taking from ten and taking from a multiple of ten. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 7	Directions: T: I say 2 and then you say 8 to take the number I say from 10. Then, write the number sentence and wait for my signal to show it. T: 6. S: 4. (Write number sentence.) T: Show your board. S: (Show 10 – 6 = 4.) Continue with the following possible sequence: 7, 9, and 5. T: This time instead of taking from 10, let's take from 20. Ready? T: 1. S: 19. (Write number sentence.) T: Show your board. S: (Show 20 – 1 = 19.) Continue with the following possible sequence: 5, 6, 8, and 3.
Activity: TWO MORE (2 minutes) Materials: None Notes: Students are eased into crossing multiples of ten by asking for just 2 more. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 7	Directions: T: When I say a number, you will say what number is 2 more. If I say 2, you say 4. Ready? 3. S: 5. Continue with the following possible sequence: 6, 9, 8, 18, 38, 58, 78, 9, 19, 39, 59, and 79.
Activity: TAKE FROM 20 (3 minutes) Materials: (S) Personal white boards Notes: Students use personal white boards to see the connection between taking from ten and taking from a multiple of ten. As students show comprehension of the skill, practice orally without the personal boards. Standard: 2.OA.B.2 EngageNY, Module 1, Lesson 8	Directions: T: I say 3, you say 7, to take the number I say from 10. Write the number sentence and wait for my signal to show it. T: 8. S: 2. (Write number sentence.) T: Show your personal boards. S: (Show 10 – 8 = 2.) Continue with the following possible sequence: 4, 5, and 9. T: This time instead of taking from 10, let's take from 20. Ready? 1. S: 19. (Write number sentence.) T: Show your personal board. S: (Show 20 – 1 = 19.) Continue with the following possible sequence: 3, 2, 5, 0, 6, 8, 7, and 9.

Activity: MAKING THE NEXT TEN TO ADD (6 minutes) Materials: (S) Personal white board Notes: Students make a unit of 10 to add, which is an important foundational fluency. Standard: 2.OA.B.2 EngageNY, Module 2, Lesson 2	Directions: T: Let's make 10 to add. If I say 9 + 2, you say 9 + 2 = 10 + 1. Ready? 9 + 3. S: 9 + 3 = 10 + 2. T: Answer? S: 12. T: 9 + 5. S: 9 + 5 = 10 + 4. T: Answer? S: 14. Continue with the following possible sequence: 9 + 7/ 9 + 6/ 9 + 8/ 8 + 3/ 8 + 5/ 7 + 4/ 7 + 6. T: On your personal white board, write at least three other similar examples.
Activity: MAKE TEN BY IDENTIFYING THE MISSING PART (3 minutes) Materials: (S) Personal white board Notes: Students identify the missing part to make the next ten. Standard: 2.OA.B.2 EngageNY, Module 2, Lesson 3	Directions: T: If I say 9, you say 1 because 9 and 1 make 10. T: Wait for the signal, 5. (Signal with a snap.) S: 5. Continue with the following possible sequence: 15, 25, 16, 24, 19, and 21. T: This time I'll say a number and you write the addition sentence to make ten on your personal whiteboard. T: 19. Get ready. Show me your board. S: (Write 19 + 1 = 20.) T: Get ready. Show me your board. Continue with the following possible sequence: 18, 12, 29, 31, 47, and 53. T: Turn and tell your partner what pattern you noticed that helped you solve the problems. T: Turn and tell your partner your strategy for finding the missing part.
SPRINT: DIFFERENCES 2.OA.2 (12 minutes) Notes: This Sprint is a review of the take from ten facts. This is in preparation for student work towards mastery of the sums and differences to 20. Standard: 2.OA.B.2 EngageNY, Module 3, Lesson 21	For directions on how to use sprints, see Appendix.. Run a few extra copies to give to students to take home; quite a few will want to. For students struggling for fluency with these basic facts, find time if possible in your instructional day to time their improvement, or allow them to time themselves.

1. Solve each doubles fact.

4 + 4 = _____ 2 + 2 = _____ 8 + 8 = _____

5 + 5 = _____ 1 + 1 = _____ 9 + 9 = _____

7 + 7 = _____ 6 + 6 = _____ 3 + 3 = _____

2. Solve each doubles +1 fact.

4 + 5 = _____ 2 + 3 = _____ 8 + 9 = _____

5 + 6 = _____ 1 + 2 = _____ 9 + 10 = _____

7 + 8 = _____ 6 + 7 = _____ 3 + 4 = _____

3. Solve each doubles +2 fact.

2 + 4 = _____ 5 + 7 = _____ 3 + 5 = _____

8 + 10 = _____ 6 + 8 = _____ 4 + 6 = _____

1 + 3 = _____ 9 + 11 = _____ 7 + 9 = _____

4. Solve each number sentence.

7 + 5 = _____ 6 + 3 = _____ 9 + 2 = _____

3 + 1 = _____ 5 + 8 = _____ 4 + 2 = _____

8 + 4 = _____ 1 + 9 = _____ 2 + 7 = _____

5. Solve each number sentence.

4 + 7 = _____ 3 + 8 = _____ 2 + 6 = _____

1 + 5 = _____ 8 + 6 = _____ 9 + 3 = _____

7 + 4 = _____ 5 + 9 = _____ 6 + 3 = _____

6. Solve each number sentence.

5 + 3 = _____ 1 + 8 = _____ 4 + 2 = _____

2 + 6 = _____ 6 + 6 = _____ 2 + 7 = _____

8 + 4 = _____ 3+ 9 = _____ 6 + 4 = _____

7. Solve.

1 + 9 = _____	2 + 14 = _____	9 + 4 = _____
19 – 7 = _____	7 + 8 = _____	16 – 8 = _____
15 + 1 = _____	5 + _____ = 15	12 + 7 = _____
9 – 6 = _____	_____ = 1 + 8	11 – 6 = _____
_____ = 9 - 7	_____ = 4 + 2	_____ = 13 - 7
_____ = 3 + 9	17 – _____ = 5	_____ = 10 + 9
7 + 6 = _____	_____ = 8 + 3	6 + 8 = _____

8. Solve.

2 + 9 = _____	**2 + 11 = _____**	**7 + 4 = _____**
15 – 3 = _____	**3 + 8 = _____**	**17 – 9 = _____**
12 + 1 = _____	**6 + _____ = 16**	**11 + 9 = _____**
9 – 4 = _____	**_____ = 1 + 4**	**11 – 5 = _____**
_____ = 8 - 2	**_____ = 5 + 2**	**_____ = 14 - 7**
_____ = 4 + 9	**16 – _____ = 3**	**_____ = 10 + 3**
7 + 8 = _____	**_____ = 6 + 3**	**4 + 8 = _____**

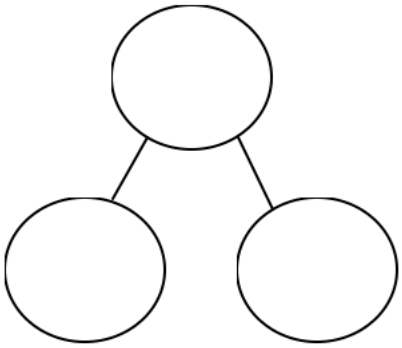
10. Solve the problem.

10 + 6 + 2 = _____

11. Solve.

3 + 7 = _____	3 + 12 = _____	7 + 2 = _____
15 – 7 = _____	7 + 6 = _____	14 – 6 = _____
12 + 1 = _____	5 + _____ = 11	10 + 7 = _____
8 – 2 = _____	_____ = 1 + 5	11 – 3 = _____
_____ = 6 - 2	_____ = 5 + 2	_____ = 16 - 9
_____ = 3 + 8	14 – _____ = 5	_____ = 10 + 6
8 + 6 = _____	_____ = 7 + 3	5 + 8 = _____

12. Fill in the missing numbers. You can use a number bond to help you.

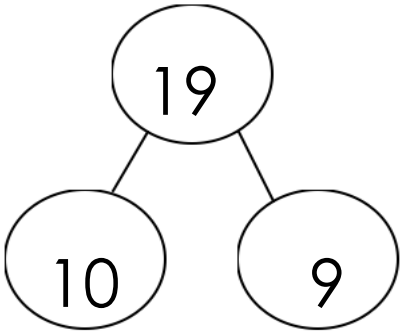


14 – 6 = _____ is the same as 6 + _____ = 14

13.Use the number bond to write two addition number sentences.

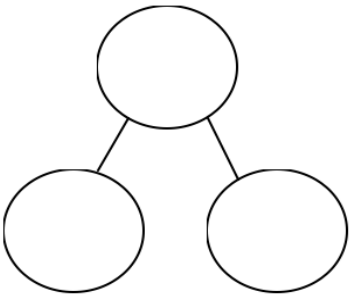
_____ + _____ = _____

_____ + _____ = _____



14. Create a number bond to help you solve.

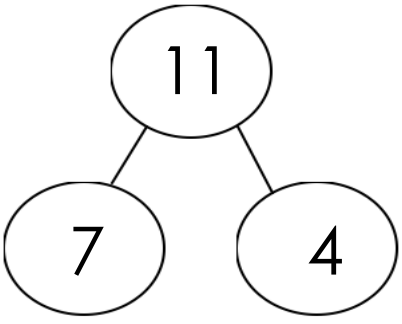
5 + _____ = 16



15. Solve.

3 + 2 + 8 = _____

16.
Write the four number sentences that go with this number bond.



_____

_____

_____

_____

17. Solve.

11 + 9 = _____	**2 + 15 = _____**	**19 + 0 = _____**
14 – 7 = _____	**3 + 8 = _____**	**18 – 5 = _____**
9 + 8 = _____	**11 + __ ___ = 15**	**11 + 7 = _____**
13 – 6 = _____	**_____ = 11 + 8**	**17 – 6 = _____**
_____ = 12 - 4	**_____ = 8 + 2**	**_____ = 12 - 7**
_____ = 2 + 9	**17 – _____ = 8**	**_____ = 3 + 10**
8 + 6 = _____	**_____ = 9 + 3**	**5 + 8 = _____**

2.NBT.A.2 - Count within 1000; skip-count by 5s, 10s, and 100s.

Directions for this page: Count up – write the number that comes next.

Example:

362 363 364 365 366 367

1. 231 _____ _____ _____ _____ _____
2. 804 _____ _____ _____ _____ _____
3. 177 _____ _____ _____ _____ _____
4. 639 _____ _____ _____ _____ _____
5. 201 _____ _____ _____ _____ _____
6. 86 _____ _____ _____ _____ _____
7. 900 _____ _____ _____ _____ _____
8. 497 _____ _____ _____ _____ _____
9. 555 _____ _____ _____ _____ _____
10. 383 _____ _____ _____ _____ _____

Directions for this page: Skip count by 5 – write the number that comes next.

Example:

360 365 370 375 380 385

11. 735 _____ _____ _____ _____ _____

12. 200 _____ _____ _____ _____ _____

13. 185 _____ _____ _____ _____ _____

14. 520 _____ _____ _____ _____ _____

15. 380 _____ _____ _____ _____ _____

16. 85 _____ _____ _____ _____ _____

17. 970 _____ _____ _____ _____ _____

18. 495 _____ _____ _____ _____ _____

19. 525 _____ _____ _____ _____ _____

20. 610 _____ _____ _____ _____ _____

Directions for this page: Skip count by 10 – write the number that comes next.

Example:

360 370 380 390 400 410

21. 220 _____ _____ _____ _____ _____

22. 600 _____ _____ _____ _____ _____

23. 470 _____ _____ _____ _____ _____

24. 90 _____ _____ _____ _____ _____

25. 180 _____ _____ _____ _____ _____

26. 530 _____ _____ _____ _____ _____

27. 360 _____ _____ _____ _____ _____

28. 710 _____ _____ _____ _____ _____

29. 850 _____ _____ _____ _____ _____

30. 270 _____ _____ _____ _____ _____

Directions for this page: Skip count by 10 – write the number that comes next.

Example:

233 243 253 263 273 283

31. 725 _____ _____ _____ _____ _____

32. 504 _____ _____ _____ _____ _____

33. 321 _____ _____ _____ _____ _____

34. 617 _____ _____ _____ _____ _____

35. 832 _____ _____ _____ _____ _____

36. 85 _____ _____ _____ _____ _____

37. 366 _____ _____ _____ _____ _____

38. 210 _____ _____ _____ _____ _____

39. 177 _____ _____ _____ _____ _____

40. 888 _____ _____ _____ _____ _____

Directions for this page: Skip count by 100 – write the number that comes next.

Example:

365 465 565 665 765 865

41. 222 _____ _____ _____ _____ _____

42. 408 _____ _____ _____ _____ _____

43. 190 _____ _____ _____ _____ _____

44. 275 _____ _____ _____ _____ _____

45. 134 _____ _____ _____ _____ _____

46. 500 _____ _____ _____ _____ _____

47. 340 _____ _____ _____ _____ _____

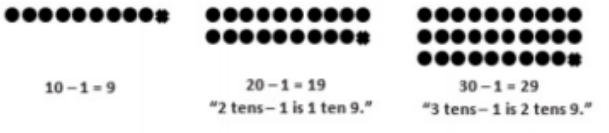
48. 210 _____ _____ _____ _____ _____

49. 450 _____ _____ _____ _____ _____

50. 385 _____ _____ _____ _____ _____

2.NBT.B.5 - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Activity: TEN PLUS NUMBER SENTENCES (3 minutes) Materials: (T) Large ten-frame cards from Lesson 1, Hide Zero cards (Template 1) Notes: Students should be able to claim proficiency with their ten plus facts. "My ten plus facts are easy! I just know them. 10 + 9 is 19. See I didn't have to count." Clearly this then extends into knowing 20 + 9 and later understanding expanded form without difficulty. Standard: 2.NBT.B.5 EngageNY, Module 1, Lesson 2	Directions: T: I will flash two ten-frame cards: ten and another card. Wait for the signal. Then tell me the addition sentence that combines the numbers. Let's say numbers the regular way. T: (Flash 10 and 5.) S: 10 + 5 = 15. Continue with the following possible sequence: 10 and 9, 10 and 1, 10 and 3. T: Let's use Hide Zero cards for larger numbers. (Flash 30 and 5.) Continue with the following possible sequence: 30 and 8, 70 and 8, and 70 and 7. T: Talk to your partner about 10 + 8 = 18/ 30 + 8 = 38/ 70 + 8 = 78. (Write these facts on the board.) What is the same about these facts? What is different? T: Partner A, explain how one problem helps you solve the other. T: Partner B, explain how Say Ten counting is like ten plus number sentences.
Activity: BREAK APART AND PUT TOGETHER BY PLACE VALUE (2 minutes) Materials: None Notes: Students remember the relevance of their ten plus facts to larger numbers. Standard: 2.NBT.B.5 EngageNY, Module 1, Lesson 3	Directions: T: When I say 10 + 5, you say 15. Ready? T: 10 + 5. S: 15. T: 10 + 2. S: 12. Continue with the following possible sequence: 10 + 9/ 10 + 4/ 20 + 4/ 50 + 4/ 30+ 8/ 70 + 8. T: How are 10 + 4 and 50 + 4 the same? How are they different? T: How is knowing that helpful? S: (Share.) T: Now, when I say 13, you say 10 + 3. T: 13. S: 10 + 3. Continue with the following possible sequence: 17, 11, 16, 18, 28, 78, 14, 34, and 94.
Activity: HOW MANY MORE TENS? (3 minutes) Materials: (S) Personal white board Standard: 2.NBT.B.5 EngageNY, Module 4, Lesson 2	Directions: T: If I say 34 - 24, you say 10. To say it in a sentence, you say 34 is 10 more than 24. Ready? T: 64 – 44. S: 20. T: Say it in a sentence. S: 64 is 20 more than 44. Continue with the following possible sequence: 85 – 45/ 68 – 38/ 59 – 49/ 47 – 17/ 99 – 19.

Activity: SUBTRACT 1 FROM MULTIPLES OF 10 (3 minutes) Materials: (T) Drawings on the board should be sufficient. Cover rows and reveal them as the numbers grow. Standard: 2.NBT.B.5 EngageNY, Module 1, Lesson 8	Notes: This fluency sequence assures that students can change from 30 to 29, 40 to 39. In Say Ten counting, the count goes from "3 tens" to "2 tens 9," or "4 tens" to "3 tens 9." Continue through 100 – 1. Consider doing the problems in order at first and then jumble the sequence.  10 – 1 = 9 20 – 1 = 19 "2 tens – 1 is 1 ten 9." 30 – 1 = 29 "3 tens – 1 is 2 tens 9."
Activity: TWO MORE (1 minute) Materials: None Notes: Students practice adding two more to make a ten, which builds fluency when crossing a ten. Standard: 2.NBT.B.5 EngageNY, Module 2, Lesson 1	Directions: T: For every number I say, you will say the number that is 2 more. If I say 2, you would say 4. Ready? 3. S: 5. Continue with the following possible sequences: 6, 8, 9, 18, 38, 58, 78, 79, 19, 29, and 39.
Activity: UP TO THE NEXT TEN WITH NUMBER SENTENCES (5 minutes) Materials: None Notes: Students remember the importance of their make ten facts with larger numbers. By saying up it indicates an addition sentence. Standard: 2.NBT.B.5 EngageNY, Module 1, Lesson 7	Directions: T: If I say, "18 up," you say "2." T: If I say, "Give me the number sentence," you say, "18 + 2 = 20." Ready? T: 7 up. S: 3. T: Give me the number sentence. S: 7 + 3 = 10. T: 17 up. S: 3. T: Give me the number sentence. S: 17 + 3 = 20. Continue with the following possible sequence: 57 up, 97 up, 6 up, 4 up, 26 up, 24 up, 54 up, 74 up, 1 up, 9 up, 31 up, 61 up, and 81 up.
Activity: MORE/LESS (4 minutes) Materials: None Notes: Practice with giving 1 or 10 more (or less) prepares students to add and subtract 1 and 10 fluently Standard: 2.NBT.B.5 EngageNY, Module 4, Lesson 1	Directions: T: For every number I say, you say a number that is 1 more. When I say 5, you say 6. Ready? T: 5. S: 6. T: 8. S: 9. Continue with the following possible sequence: 9, 16, 19, 28, 38, 39, 44, 49, 54, and 60. T: Now for every number I say, you say a number that is 10 more. When I say 50, you say 60. Ready? T: 50. S: 60. T: 10. S: 20. Continue with the following possible sequence: 80, 40, 20, 21, 28, 30, 35, 45, and 56. T: Let's try saying 1 less for every number I say. When I say 6, you say 5. Ready? T: 6. S: 5. T: 9. S: 8. Continue with the following possible sequence: 11, 14, 19, 20, 30, 31, 51, and 50. T: Now for every number I say, you say a number that is 10 less. When I say 50, you say 40. Ready? (Have students continue the sequence.) After students respond, continue with the following possible sequence: 80, 70, 60, 61, 41, 46, 48, 28, and 18.

Activity: METER STRIP ADDITION: ADDING MULTIPLES OF 10 TO NUMBERS (6 minutes) Materials: (S) Meter Strip Template Notes: Students apply knowledge of using the ruler as a number line to fluently add multiples of 10. The meter strip solidifies the process for visual and tactile learners, and creates the groundwork for students to make tape diagrams in the lesson. Standard: 2.NBT.B.5 EngageNY, Module 2, Lesson 9 Template: EngageNY, Module 2, Lesson 6	Directions: T: (Each student has a meter strip.) Put your finger on 0 to start. I'll say the whole measurement. Slide up to that number. Add 10 centimeters and tell me how many centimeters your finger is from 0. T: Let's try one. Fingers at 0 centimeters! (Pause.) 30 centimeters. S: (Slide their fingers to 30.) T: Remember to add 10. (Pause.) How far is your finger from 0? S: 40 centimeters. Continue with the following possible sequence: 45 cm, 51 cm, 63 cm, 76 cm, 87 cm, and 98 cm. As students show mastery, advance to adding 20 centimeters.
Activity: METER STRIP ADDITION: USING TWO-DIGIT NUMBERS WITH TOTALS IN THE ONES PLACE THAT ARE LESS THAN OR EQUAL TO 12 (7 minutes) Materials: (S) Meter Strip Template Standard: 2.NBT.B.5 EngageNY, Module 3, Lesson 5	Directions: T: (Each student has a meter strip.) We're going to practice addition using our meter strips. T: Put your finger on 0. Slide up to 20. (Wait.) Slide up 9 more. T: How many centimeters did you slide up altogether? S: 29 centimeters. T: Tell your partner a number sentence describing sliding from 20 to 29. S: 20 + 9 = 29. T: Put your finger on 0. Slide up to 34. (Wait.) Slide up 25 more. T: How many centimeters did you slide up altogether? S: 59 centimeters! T: Whisper a number sentence describing sliding from 34 to 59. S: 34 + 25 = 59 Continue with the following possible sequence: 46 + 32/ 65 + 35/ 57 + 23/ 45 + 36/ 38 + 24.

Activity: METER STRIP SUBTRACTION: TAKING MULTIPLES OF 10 FROM NUMBERS WITHIN 10 TO 100 (5 minutes)
Materials: (S) Meter Strip Template
Standard: 2.NBT.B.5

T: Put your finger on 0 to start. I'll say the whole measurement. Slide up to that number. Then take away 10 centimeters and tell me how many centimeters your finger is from 0.
T: Let's try one. Fingers at 0 centimeters! (Pause.) 50 centimeters.
S: (Slide their fingers to 50.)
T: Remember to take 10. (Pause.) How far is your finger from 0?
S: 40!
T: 40 what?
S: 40 centimeters!
T: Slide your finger back to 0. (Pause.) 85 centimeters.
T: (Pause.) How far is your finger from 0?
S: 75 centimeters!
T: Good. Slide back to 0. (Pause.) 49 centimeters.
Continue with examples as necessary.
T: Nice work. This time I'll say the whole measurement, and you take 20 centimeters. Ready?
T: Slide back to 0. (Pause.) 65 centimeters.
S: 45 centimeters!
Continue with the following possible sequence: Slide from 0 to 32, then take 20; to 36, then take 30; to 78, then take 50; to 93, then take 40; to 67, then take 60, etc.

Keep students challenged and engaged by adding a new layer of complexity to the game in this second round. The following are suggestions for how you might adapt the sequence demonstrated previously to match students' ability levels. Suggestions are given in order from least to most complex.

- Subtract 9 and then 8 from multiples of 10 up to 100.
- Subtract any two-digit number from a multiple of 10 up to 100 (e.g., 30 – 13, 40 – 24, 60 – 45).
- Tell or write a number sentence describing sliding down from the whole amount (e.g., 50 – 10 = 40 cm).
- Create a sequence of *change unknown* slides. For example:

T: Start with your finger on 0. Slide up to 52 cm.
T: Now, slide down to 49. How many centimeters did you slide down?
S: 3 cm!

- Tell or write a problem to describe the *change unknown* slide (e.g., 52 –_ = 49 cm).
- State that change in a sentence, including the unit. "I slid down _ centimeters."

EngageNY, Module 3, Lesson 1

Activity: METER STRIP ADDITION: WITH TWO-DIGIT NUMBERS AND TOTALS IN THE ONES THAT ARE GREATER THAN 12 (7 minutes)
Materials: (S) Meter Strip Template, personal white board
Standard: 2.NBT.B.5

T: (Each student has a meter strip.) We're going to practice addition using our meter strips.
T: Put your finger on 0. Slide up to 27 centimeters. (Wait) Slide up 35 more centimeters. You might first skip-count by ten three times, then go up 5 ones.
T: How many centimeters did you slide up altogether?
S: 62 centimeters.
T: Tell your partner a number sentence describing sliding from 27 to 62.
S: 27 + 35 = 62.
T: Put your finger on 0 centimeters. Slide up to 38 centimeters. (Wait) Slide up 36 more centimeters.
T: How many centimeters did you slide up altogether?
S: 74 centimeters!
T: At the signal say a number sentence describing sliding from 38 to 74.
S: 38 + 36 = 74.

Continue with the following possible sequence: 37 + 37, 45 + 28, 49 + 26, 68 + 28, and 57 + 29.
T: In each of these problems we had more than 9 ones so we had to make a new ten. I will write an expression. Wait for the signal. Say "make ten" if you have more than 9 ones. Say, "you can't make ten," if there are not enough ones.
T: 35 + 22.
S: You can't make ten.
T: 63 + 16.
S: You can't make ten.
T: 48 + 29.
S: Make ten.
T: 36 + 54.
S: Make ten.
T: 27 + 16.
S: Make ten.
T: Now, turn to your partner and on your personal white board, write as many addition expressions as you can solve on your meter strip that need to make ten. You have one minute. Take your mark, get set, go!

EngageNY, Module 3, Lesson 6

Activity: CHORAL COUNTING
Materials: Chart paper, marker, base-ten blocks
Standard: 2.NBT.B.5
Note: Teachers may want to devote an entire lesson to introducing this activity. Modify the activity to a short amount of practice each time. Remove support as students' counting skills improve.

- The teacher will begin by asking a student volunteer to show 3 using base-ten blocks. The teacher will then record 3 on the chart.
- The teacher will then ask how students can show the number that is 10 more and invite another student volunteer to build 10 more with cubes. Student may add 10 individual units or a ten stick. The goal is for students to move from counting ten units to counting one unit of 10, and to connect the concrete representations of the numbers with abstract oral counting. The teacher will then record 13 on the chart.
- The teacher should continue this process, asking students "What's 10 more than _?" and have student volunteers show 10 more with the base-ten blocks. At some point, a student will likely use a ten stick instead of ten ones; when this happens, the teacher can help the students see this is a more efficient strategy. If no students add a ten stick, the teacher can help them make this transition.
- The goal of writing the numbers on the chart paper as shown below is to record the numbers in a way that makes the "add ten" pattern visible for students. By recording 10 numbers in a row, students may see patterns in tens as they look across, and also hundreds as they look vertically.

3	13	23	33	43	53	63	73	83	93
103	113	123	133	143	153	163	173	183	193
203									

As this activity is introduced, the teacher should pose questions to elicit student thinking andunderstanding of the concept of 10, 100, and patterns within the structure of our base ten number system.

Questions may include:
- What do you notice? Why do you think that is?
- What number will be next? How do you know?
- What's happening to the digit in the tens place? Why?
- What's happening to the digit in the ones place? Why?
- Why do the numbers build like that?
- What's the relationship between _ and _?
- What patterns do you notice looking horizontally? vertically?
- What number will be below _ ? How do you know?
- What number will be at the end of the fourth row? How do you know?

As students become more comfortable with choral counting, have them: count up by 100s; count back by 100s; alternate between counting up and back; alternate between counting by 10 and counting by 100.

Illustrative Mathematics, Choral Counting

1. **_____ + 45 = 63**

2. **26 + 37 = _____**

3. **73 – 26 = _____**

Solve.

4. 45 + _____ = 100

5. 35 + _____ = 50

6. _____ + 25 = 100

7. _____ + 15 = 50

8. 100 = _____ + 80

9. 50 = 20 + _____

10. Calculate.

65 - 37	60 - 43	45 – 28 = _____
55 + 29 = _____	23 + 73	17 + 58

11. **67 + 25 = _____**

12. **75 - _____ = 23**

13. **55 – 19 = _____**

14. Use a number line to solve.

93 – 27 = ___

---

15. Solve.

50 - 34 = _____

16. Solve. **_____ = 22 + 59**

17. Solve. **_____ = 33 + 47**

18. Solve. **74 - 28 = _____**

19. Calculate.

76 - 37	50 - 23	75 – 48 = _____
56 + 39 = _____	13 + 74	27 + 52

20. **76 + 18 = _____**

21. **53 - _____ = 28**

22. **65 – 36 = _____**

23. Calculate.

95 - 38	60 - 47	55 – 38 = _____
55 + 29 = _____	24 + 76	27 + 58

24. Find the missing number.

_____ - 29 = 48

25. Find the missing number.

_____ + 43 = 73

26. Use sticks and dots to find the total.	27. Use expanded notation to solve.

52 + 43 = _____	**22 51 = _____**
28. Solve. **15 + 22 = _____**	29. Which would give you a total of 61? Circle your answer. 20 + 0 + 40 + 1 30 + 0 + 10 + 0 60 + 1 + 60 + 0 3 + 1 + 3 + 0

30. Solve. **22+ 43 = _____**	31. Solve. **17+ 63 = _____**

32. Solve.

22+ 43 = _____

33. Solve.

17+ 63 = _____

34. Circle which set of sticks and dots will help to find the total?

62 + 24 = _____

||||||.. ||....	.....|| ..||	.....	|||||| ||

35. Solve.

26 + 43 = _____

36. Solve.

34 + 48 = _____

37. Solve.

51 - 30 = _____

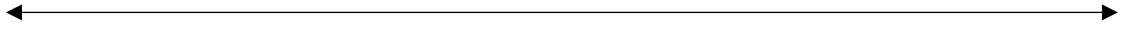
38. Solve to find the total.

57 + 28 = _____

39. Solve.

24 + 49 = _____

40. Solve using a number line. **28 + 36 = _____**

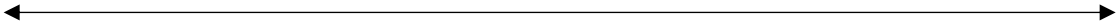


41. Solve.

45 – 30 = _____

42. Solve using a number line. **28 + 36 = _____**

43. Solve using a number line. **22 + 71 = _____**



44. Solve using sticks and dots.

68 - _____ = 34

45. Solve.

_____ = 34 + 45

2.NBT.B.6 - Add up to four two-digit numbers using strategies based on place value and properties of operations.

1. Solve.

$$13 + 10 + 21 + 30 = \_\_\_\_$$

---

2. Which 3 numbers add to a total of 40?

22	10	18	8

Answer: _____

---

3. Solve.

$$33 + 34 + 26 = \_\_\_$$

---

4. $17 + 24 + 33 + 19 = \_\_\_\_$

5. Which 4 numbers add to a total of 100?

12	48	30
10	56	14

Answer: _____

6. 45 + 31 + 12 = _____

7. What are two ways that you can make 65 using 3 addends?

_____ + _____ +_____ = 65	_____ + _____ +_____ = 65

8. 27 + 55 + 17 = _____

9. Find the total.

$$\begin{array}{r} 24 \\ 21 \\ 35 \\ +\,11 \\ \hline \end{array}$$

10. What are two ways that you can make 92 using 3 addends?

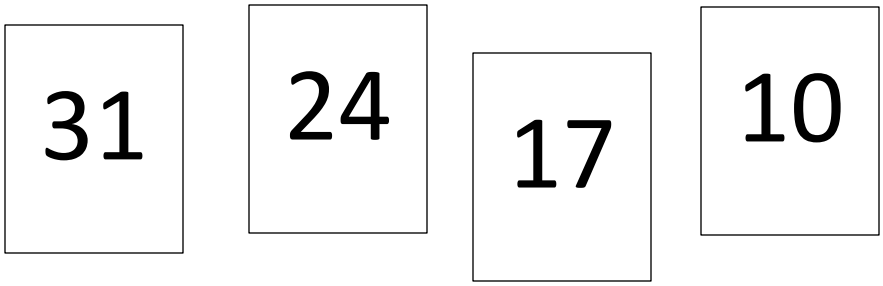
_____ + _____ +_____ = 92	_____ + _____ +_____ = 92

11. Which 3 numbers can be added together to make a total of 50?

27	13
60	10

_____ + _____ + _____ = 50

12. Gunther was playing a card game. Below are the 4 cards he pulled. What is his total?



13. Solve.

13 + 10 + 21 + 30 = ____

14. Which 3 numbers add to a total of 50?

22	10	18	8

Answer: _____

15. Solve.

$23 + 54 + 17 = \_\_\_$

16. $15 + 22 + 13 + 39 = \_\_\_\_$

17. Which 4 numbers add to a total of 100?

11	39	30
25	34	16

Answer: _____

18. 25 + 41 + 17 = _____

19. What are two ways that you can make a total of 50 using 3 addends?

_____ + _____ +_____ = 50	_____ + _____ +_____ = 50

20. 52 + 15 + 27 = _____

21. Find the total.

$$\begin{array}{r} 34 \\ 18 \\ 25 \\ +\,13 \\ \hline \end{array}$$

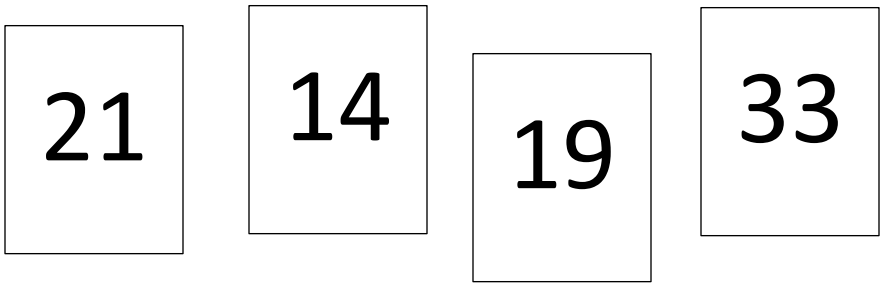
22. What are two ways that you can find 77 using at least 3 addends?

_____ + _____ +_____ = 77	_____ + _____ +_____ = 77

23. Which <u>3 numbers</u> can be added together to make a total of 75?

37	13
30	25

24. Devon was playing a card game. Below are the 4 cards he pulled. What is his total?



Workbook C

2.MD.D.9 – Generate measurement data by measuring the lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole units.

1. Measure the lines below in inches. Record the data using tally marks on the table provided.

Line A _____

Line B _____

Line C _____

Line D _____

Line E _____

Line F _____

Line G _____

Line Length	Number of Lines
Shorter than 5 inches	
Longer than 5 inches	
Equal to 5 inches	

iii

2. The lines below have been measured for you. Record the data using tally marks on the table provided, and answer the questions below.

Line A 5 inches _____

Line B 6 inches _____

Line C 4 inches _____

Line D 6 inches _____

Line E 3 inches _____

Line Length	Number of Lines
Shorter than 5 inches	
5 inches or longer	

3. Use your ruler to measure the lines below in inches. Record the data using tally marks on the table provided.

Line A _____

Line B _____

Line C _____

Line D _____

Line E _____

Line F _____

Line G _____

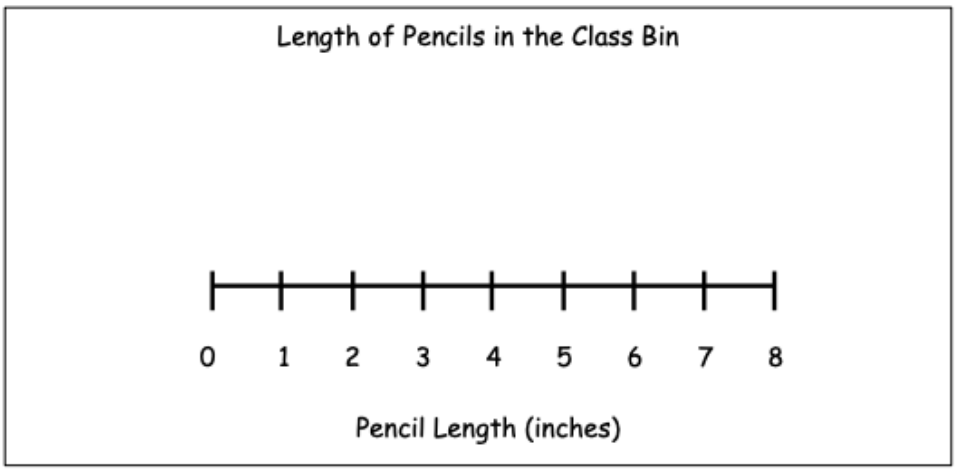
Line Length	Number of Lines
Shorter than 4 inches	
Longer than 4 inches	
Equal to 4 inches	

iv

4. e data in the tables to create a line plot and answer the questions.

1.

Pencil Length (inches)	Number of Pencils
2	I
3	II
4	𝍸 I
5	𝍸 II
6	𝍸 III
7	IIII
8	I



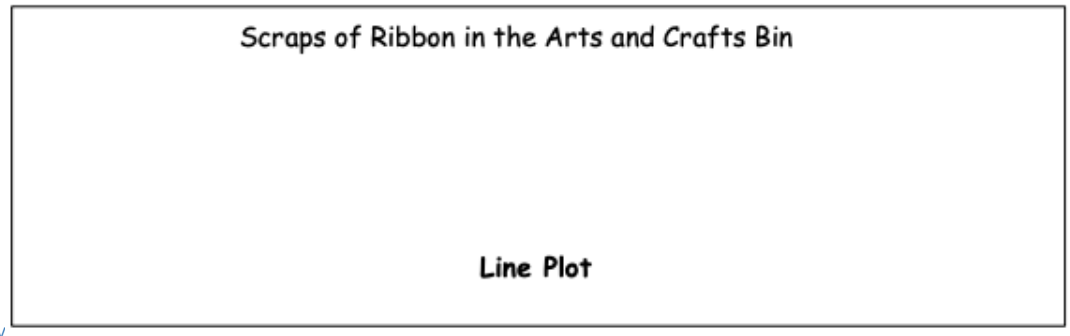
Describe the pattern you see in the line plot:

_____

_____

5.

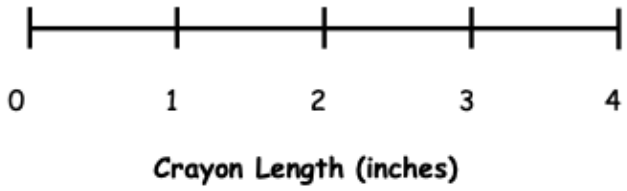
Length of Ribbon Scraps (centimeters)	Number of Ribbon Scraps
14	I
16	III
18	𝍸 III
20	𝍸 II
22	𝍸



6. Use the data in the table to create a line plot.

Length of Crayons in a Class Bin

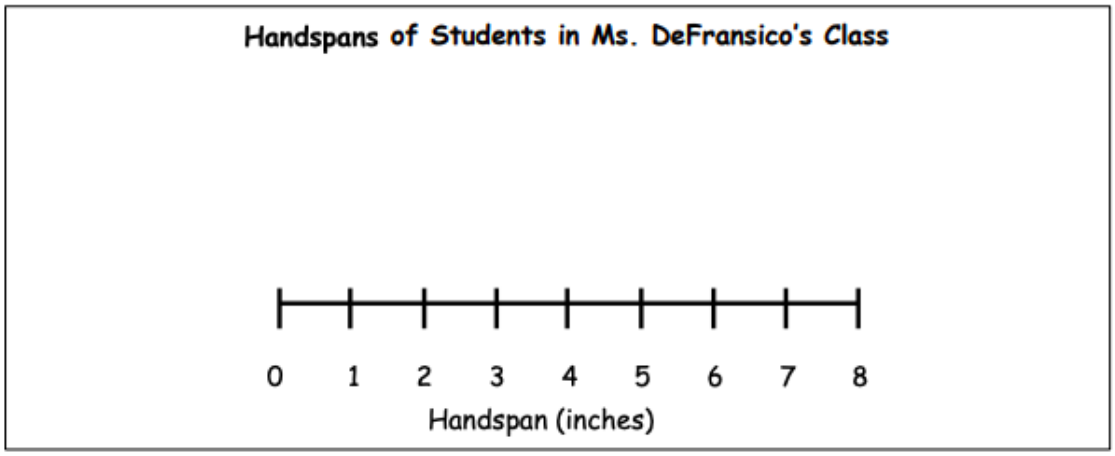
Crayon Length (inches)	Number of Crayons
1	III
2	𝍸 IIII
3	𝍸 II
4	𝍸



vi

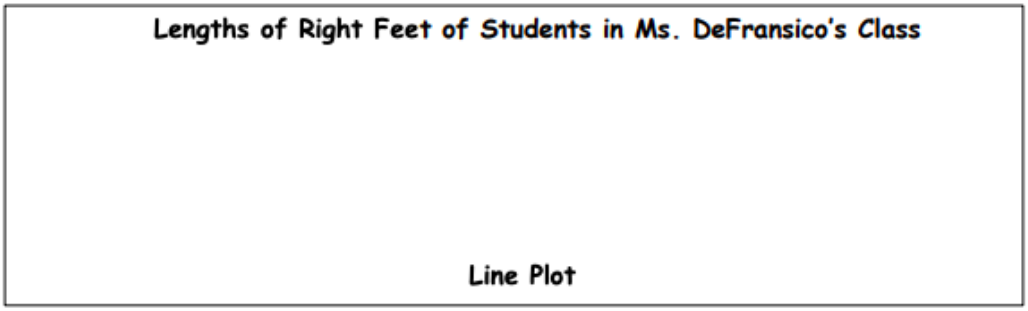
7. Use the data in the table to create a line plot and answer the question.

Handspan (inches)	Number of Students
2	
3	
4	|
5	𝍸 ||
6	𝍸 𝍸
7	|||
8	|



8. 2. Use the data in the table to create a line plot and answer the questions.

Length of Right Foot (centimeters)	Number of Students
17	I
18	II
19	IIII
20	~~IIII~~ I
21	~~IIII~~ I
22	II
23	I



vii

viii

Use the data in the chart provided to create a line plot and answer the questions.

9. The chart shows the heights of the second-grade students in Mr. Yin's homeroom.

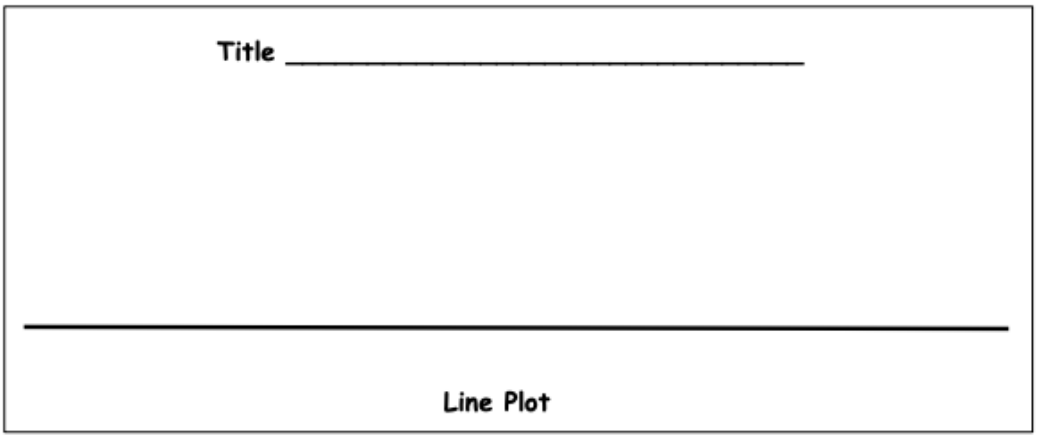
Height of Second-Grade Students	Number of Students
40 inches	1
41 inches	2
42 inches	2
43 inches	3
44 inches	4
45 inches	4
46 inches	3
47 inches	2
48 inches	1

Title _____

Line Plot

10. The chart shows the length of paper second-grade students used in their art projects.

Length of Paper	Number of Students
3 ft	2
4 ft	11
5 ft	9
6 ft	6



ix

Use the data in the table provided to create a line plot and answer the questions.

11. The table below describes the length of pencils in Mrs. Richie's classroom n centimeters.

Length (centimeters)	Number of Pencils
12	1
13	4
14	9
15	10
16	10

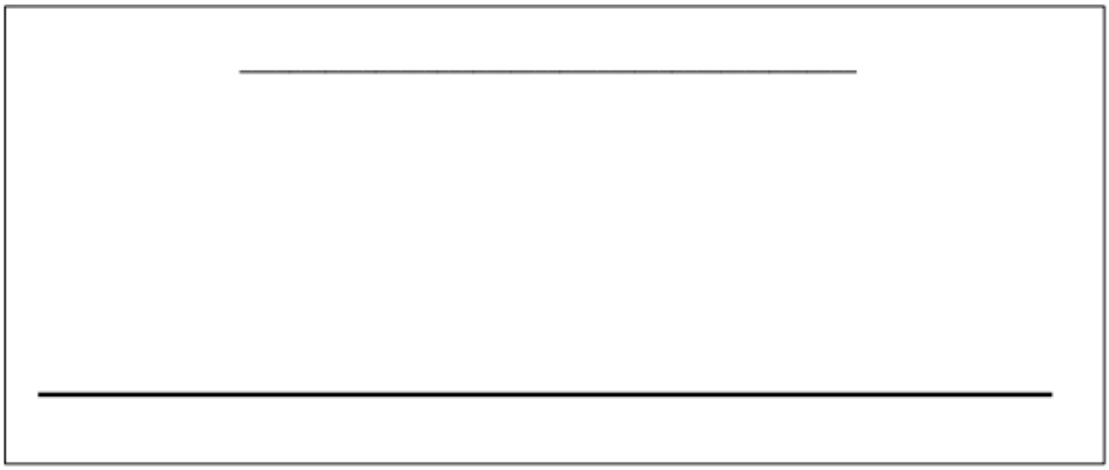
x

12.

Use the data in the table provided to create a line plot.

The table below describes the heights of second-grade students on the soccer team.

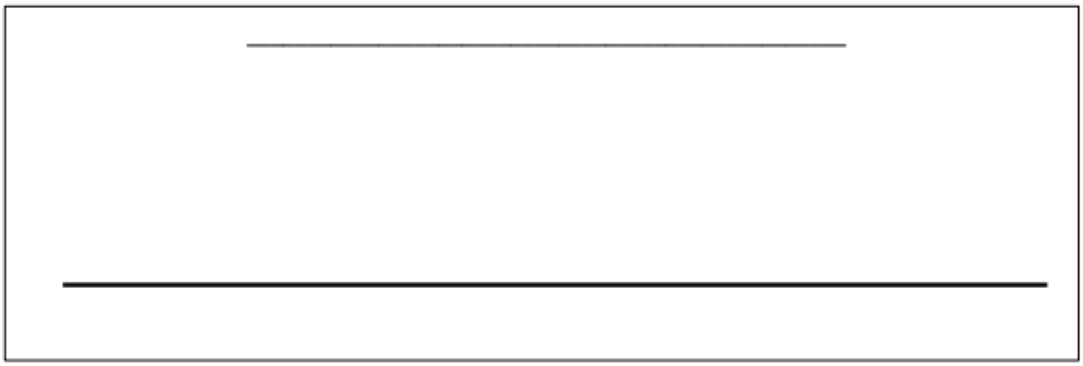
Height (inches)	Number of Students
35	3
36	4
37	7
38	8
39	6
40	5



Use the data in the table provided to create a line plot and answer the questions.
Plot only the lengths of shoelaces given.

13. The table below describes the lengths of student shoelaces in Ms. Henry's class.

Length of Shoelaces (inches)	Number of Shoelaces
27	6
36	10
38	9
40	3
45	2

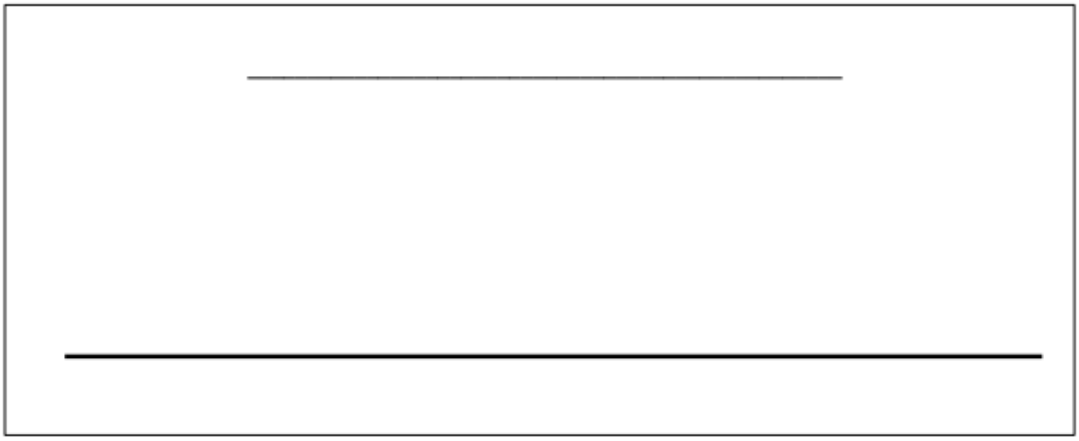


xi

Use the data in the table provided to create a line plot and answer the questions.

3. The table below describes the lengths of crayons in centimeters in Ms. Harrison's crayon box.

Length (centimeters)	Number of Crayons
4	4
5	7
6	9
7	3
8	1



xii

2.MD.D.10 — Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.[xiii]

1. Count and categorize each picture to complete the table with tally marks.

No Legs	2 Legs	4 Legs

2. Count and categorize each picture to complete the table with numbers.

Fur	Feathers

3. Use the Animal Habitats table to answer the following questions.

Animal Habitats		
Forest	Wetlands	Grasslands
𝍸 |	𝍸	𝍸 𝍸 ||||

a. How many animals have habitats on grasslands and wetlands? ____

b. How many fewer animals have forest habitats than grasslands habitats? ____

c. How many more animals would need to be in the forest category to have the same number as animals in the grasslands category? ____

d. How many total animal habitats were used to create this table? ____

4. Use the Animal Classification table to answer the following questions about the types of animals Ms. Lee's second-grade class found in the local zoo.

Animal Classification			
Birds	**Fish**	**Mammals**	**Reptiles**
6	5	11	3

a. How many animals are birds, fish, or reptiles? _____

b. How many more birds and mammals are there than fish and reptiles? _____

c. How many animals were classified? _____

d. How many more animals would need to be added to the chart to have 35 animals classified? _____

e. If 5 more birds and 2 more reptiles were added to the table, how many fewer reptiles would there be than birds? _____

Use the Animal Classification table to answer the following questions about the types of animals at the local zoo.

Animal Classification			
Birds	**Fish**	**Mammals**	**Reptiles**
9	4	17	8

5. How many animals are birds, fish, or reptiles? _____

6. How many more mammals are there than fish? _____

7. How many animals were classified? _____

8. How many more animals would need to be added to the chart to have 45 animals classified? _____

xv

9. Use grid paper to create a picture graph below using data provided in the table. Then, answer the questions.

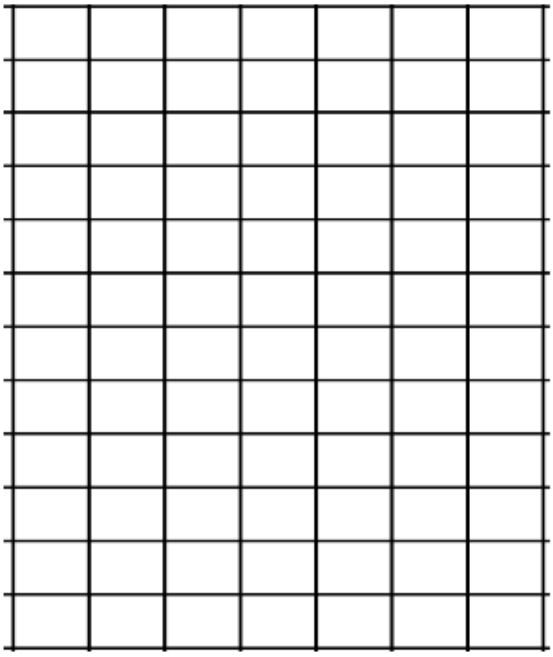
Central Park Zoo Animal Classification			
Birds	Fish	Mammals	Reptiles
6	5	11	3

a. How many more animals are mammals than fish? _____

b. How many more animals are mammals and fish than birds and reptiles? _____

c. How many fewer animals are reptiles than mammals? _____

Title: _____



____ ____ ____ ____

Legend: _____

d. Write and answer your own comparison question based on the data.

Question: _____

Answer: _____

10. Use the table below to create a picture graph in the space provided.

Animal Habitats		
Desert	Tundra	Grasslands
𝍸 |	𝍸	𝍸 𝍸 ||||

Title: _____

_____

_____

_____

Legend: _____

a. How many more animal habitats are in the grasslands than in the desert? ____

b. How many fewer animal habitats are in the tundra than in the grasslands and desert combined? ____

c. Write and answer your own comparison question based on the data.

Question: _____

Answer: _____

xvi

11. Use grid paper to create a picture graph below using data provided in the table. Then, answer the questions.

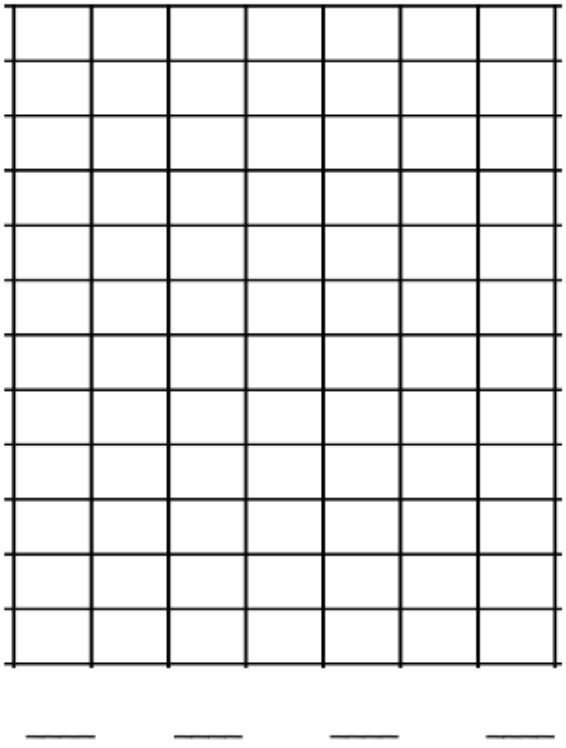
Fairview Park Zoo Animal Classification			
Birds	**Fish**	**Mammals**	**Reptiles**
8	4	12	5

a. How many more animals are mammals than birds? _____

b. How many more animals are mammals and reptiles than birds and fish? _____

c. How many fewer animals are fish than birds? _____

Title: _____



_____ _____ _____ _____

Legend: _____

xvii

12.

Use grid paper to create a picture graph below using data provided in the table. Then, answer the questions.

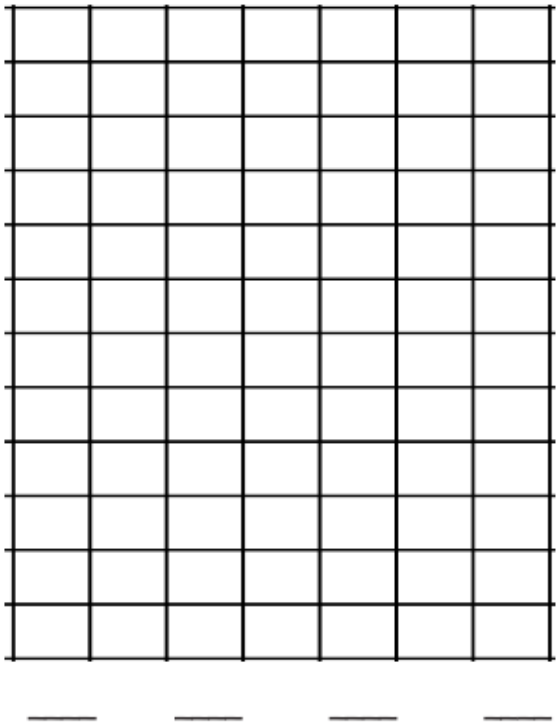
Favorite Mammals			
Tiger	Panda	Snow Leopard	Gorilla
8	11	7	12

a. How many more people chose gorilla as their favorite mammal than chose tiger? _____

b. How many more people chose tiger and gorilla as their favorite mammals than panda and snow leopard? _____

c. How many fewer people chose tiger as their favorite mammal than panda? _____

Title: _____



_____ _____ _____ _____

Legend: _____

d. Write and answer your own comparison question based on the data.

Question: _____

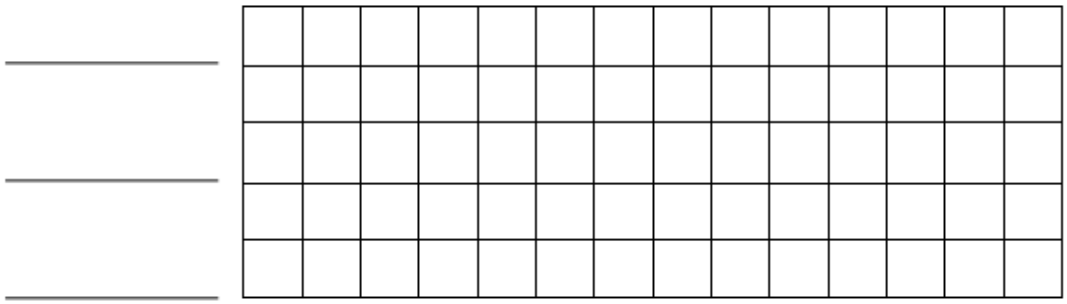
Answer: _____

13.

Use the data of Mr. Clark's class vote to create a picture graph in the space provided.

Favorite Birds		
Penguin	Flamingo	Peacock
𝍸 |	𝍸	𝍸 𝍸 ||||

Title: _____



Legend: _____

a. How many more students voted for peacocks than penguins? _____

b. How many fewer votes are for flamingos than penguins and peacocks? _____

c. Write and answer your own comparison question based on the data.

Question: _____

Answer: _____

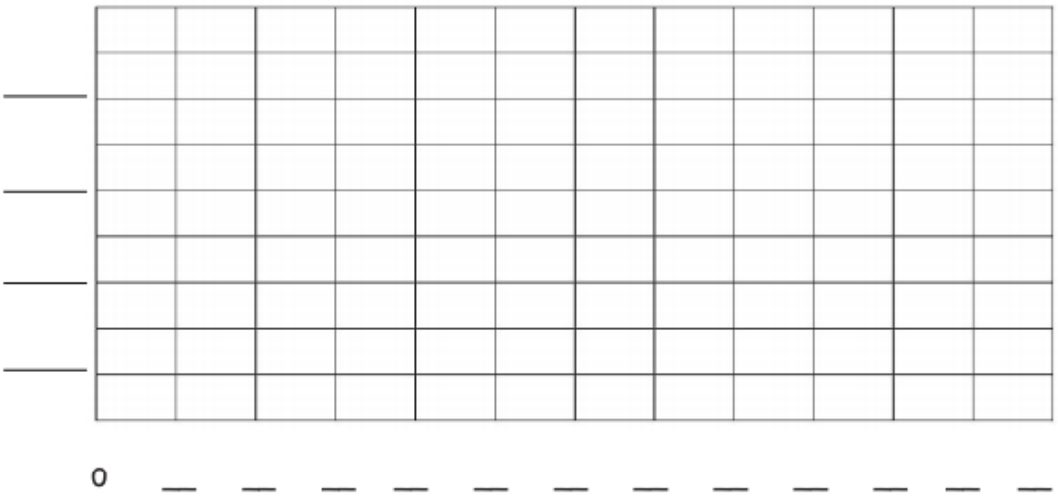
xix

14.

Complete the bar graph below using data provided in the table. Then, answer the questions about the data.

Animal Classification			
Birds	Fish	Mammals	Reptiles
6	5	11	3

Title: _____



a. How many more animals are birds than reptiles? _____

b. How many more birds and mammals are there than fish and reptiles? _____

c. How many fewer animals are reptiles and fish than mammals? _____

d. Write and answer your own comparison question based on the data.

Question: _____

Answer: _____

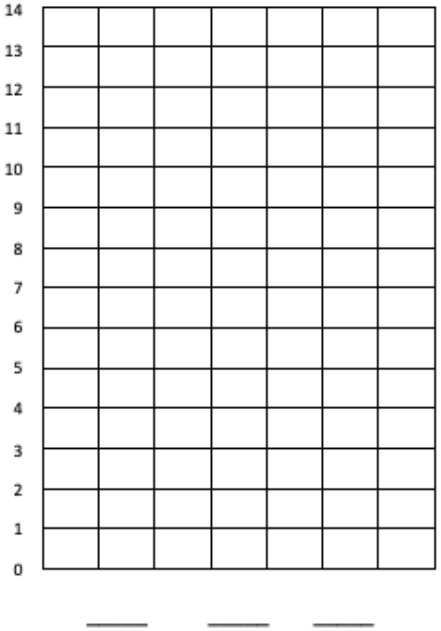
xx

15.

Complete the bar graph below using data provided in the table.

Animal Habitats		
Desert	Arctic	Grasslands
𝍸 |	𝍸	𝍸 𝍸 ||||

Title: _____



____ ____ ____

a. How many more animals live in the grasslands and arctic habitats combined than in the desert? _____

b. If 3 more grasslands animals and 4 more arctic animals are added to the graph, how many grasslands and arctic animals would there be? _____

c. If 3 animals were removed from each category, how many animals would there be? _____

d. Write your own comparison question based on the data, and answer it.

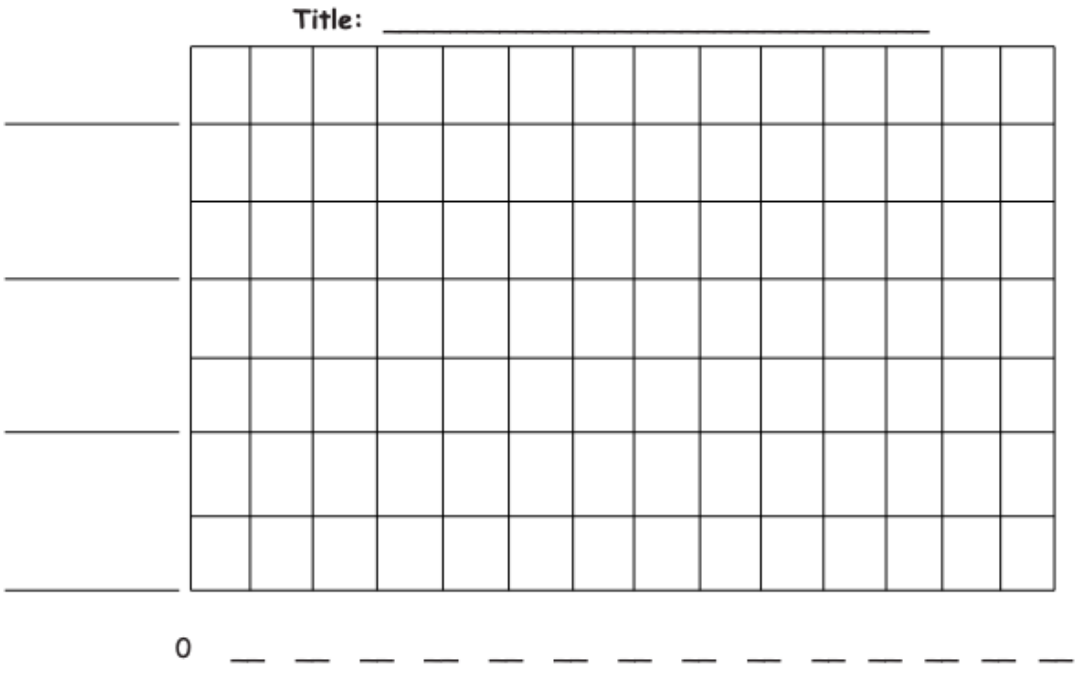
Question: _____

xxi

16.

Complete the bar graph below using data provided in the table. Then, answer the questions about the data.

Animal Classification			
Birds	Fish	Mammals	Reptiles
7	12	8	6



a. How many more animals are fish than reptiles? _____

b. How many more fish and mammals are there than birds and reptiles? _____

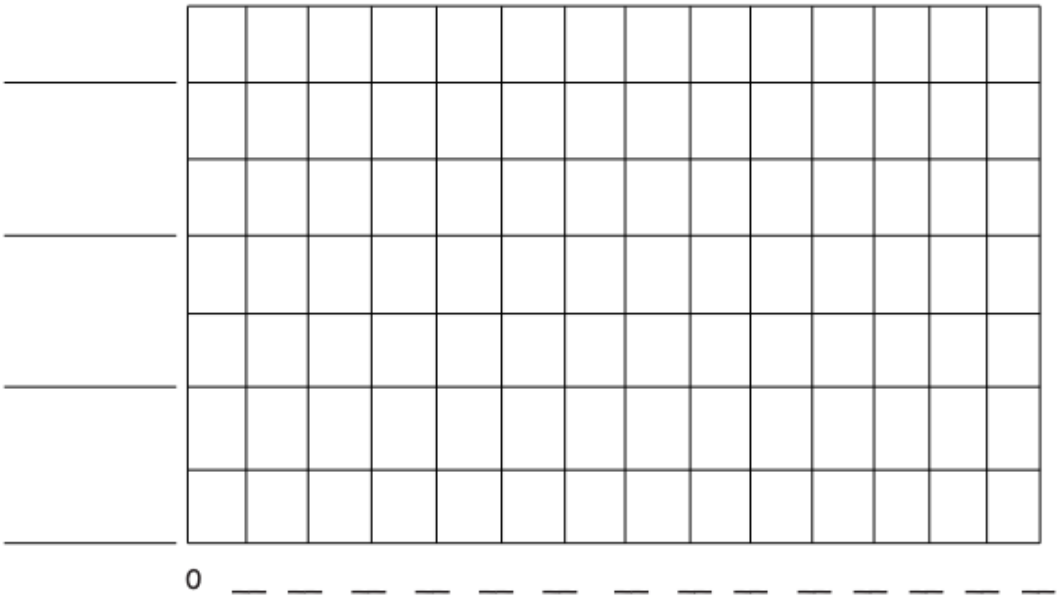
xxii

17.

Complete the bar graph below using data provided in the table. Then, answer the questions about the data.

Various Animal Coverings at Jake's Pet Shop			
Fur	Feathers	Shells	Scales
12	9	8	11

Title: _____



a. How many more animals have fur than shells? _____

b. Which pair of categories has more, fur and feathers or shells and scales? (Circle one.) How much more? ____

c. Write and answer your own comparison question based on the data.

Question: _____

Answer: _____

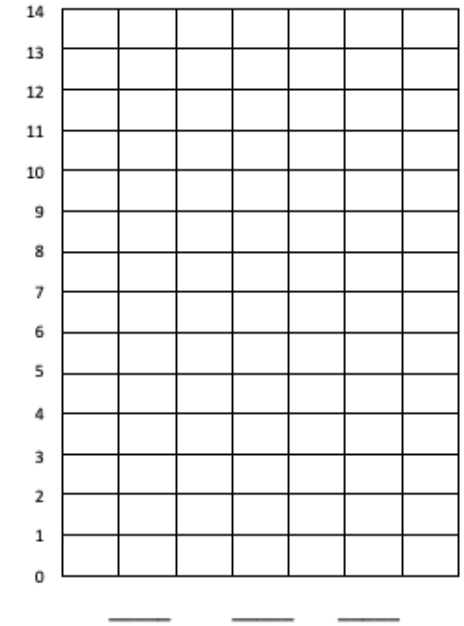
xxiii

18.

Complete the bar graph below using data provided in the table.

City Shelter Animal Diets		
Meat Only	Plants Only	Meat and Plants
𝍸 | | |	𝍸 | | | |	𝍸 𝍸 | | | |

Title: _____



____ ____ ____

a. How many total animals are in the city shelter? _____

b. How many more meat- and plant-eating animals are there than meat only? _____

c. If 3 animals were removed from each category, how many animals would there be? ____

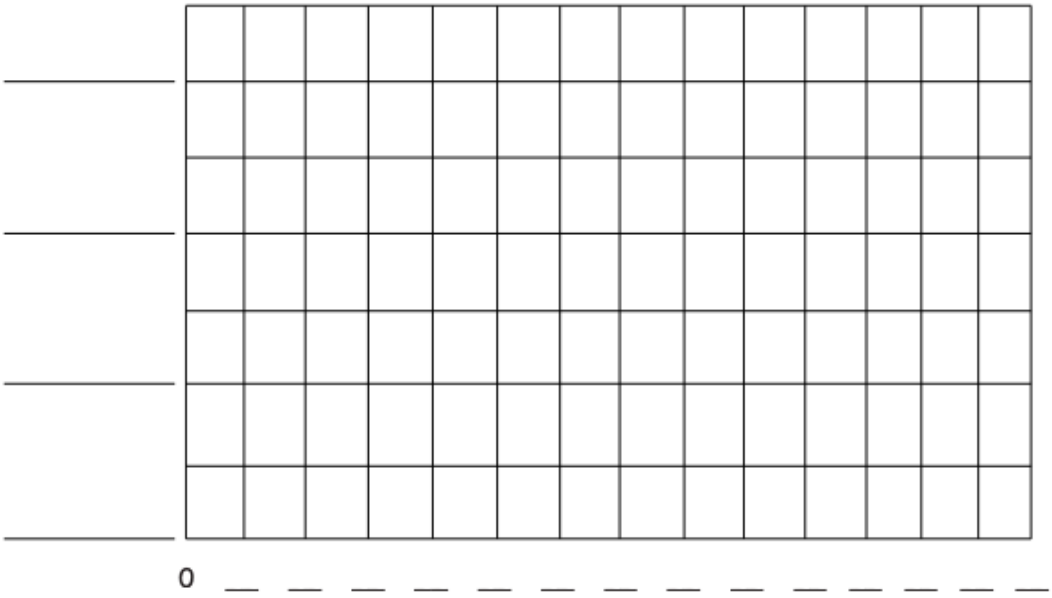
d. Write your own comparison question based on the data, and answer it.

xxiv

19. Complete the bar graph using the table with the types of bugs Alicia counted in the park. Then, answer the following questions.

Types of Bugs			
Butterflies	Spiders	Bees	Grasshoppers
5	14	12	7

Title: _____



a. How many butterflies were counted in the park? _____

b. How many more bees than grasshoppers were counted in the park? _____

c. Which bug was counted twice as many times as grasshoppers? _____

d. How many bugs did Alicia count in the park? _____

e. How many fewer butterflies than bees and grasshoppers were counted in the park? _____

20. Complete the bar graph with labels and numbers using the number of farm animals on O'Brien's farm.

O'Brien's Farm Animals			
Goats	Pigs	Cows	Chickens
13	15	7	8

a. How many more pigs than chickens are on O'Brien's farm? _____

b. How many fewer cows than goats are on O'Brien's farm? _____

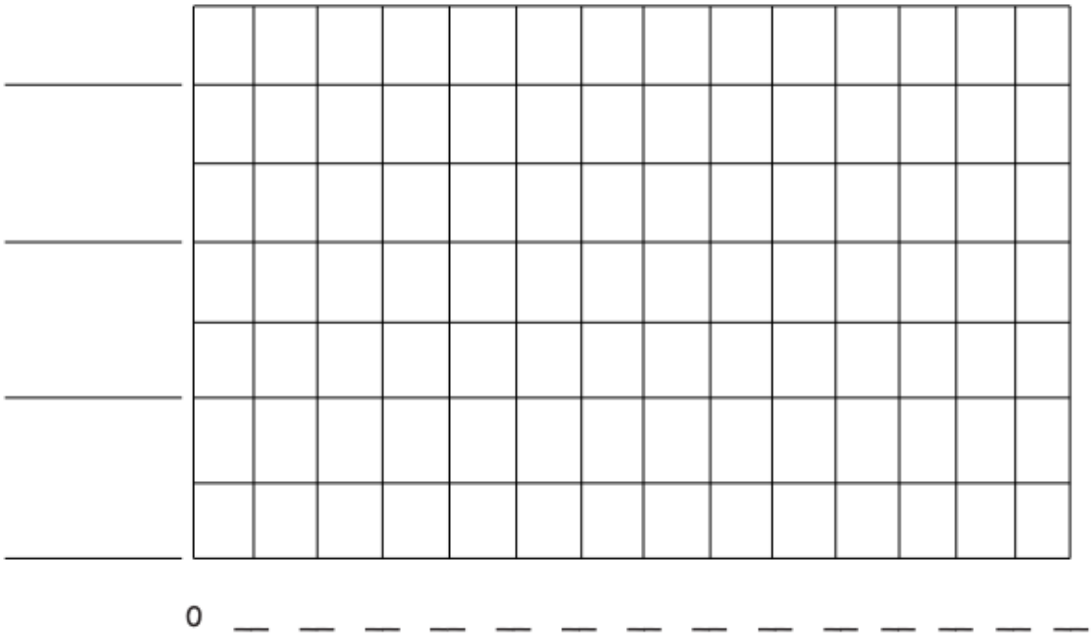
c. How many fewer chickens than goats and cows are on O'Brien's farm? _____

xxvi

21. Complete the bar graph using the table with the types of reptiles at the local zoo. Then, answer the following questions.

Types of Reptiles			
Snakes	Lizards	Turtles	Tortoises
13	11	7	8

Title: _____



a. How many reptiles are at the zoo? _____

b. How many more snakes and lizards than turtles are at the zoo? _____

c. How many fewer turtles and tortoises than snakes and lizards are at the zoo? _____

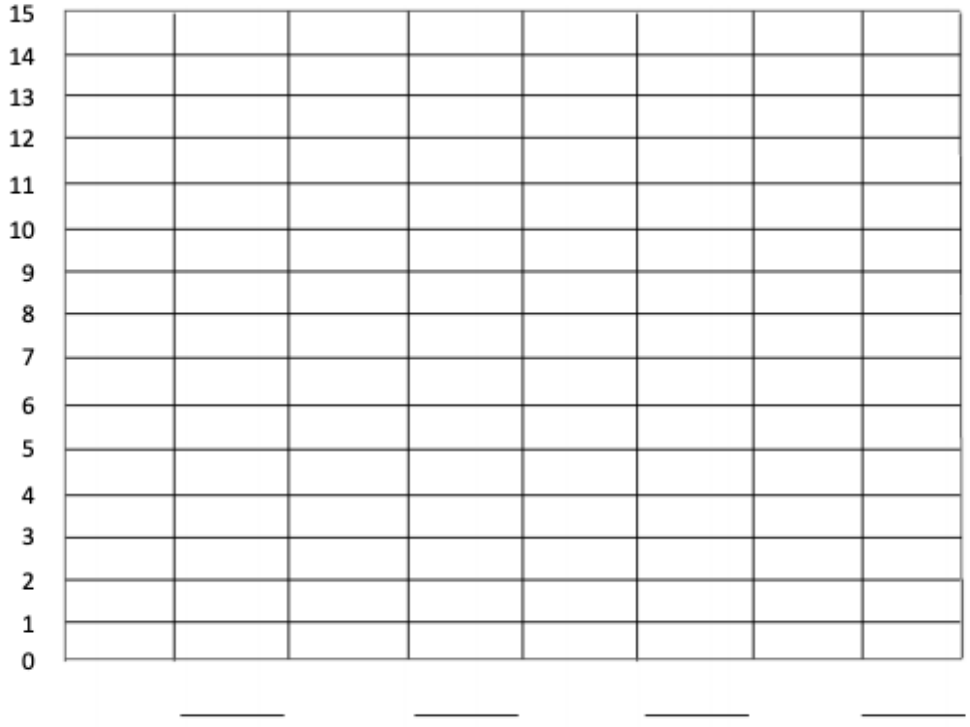
d. Write a comparison question that can be answered using the data on the bar graph.

_____

22. Complete the bar graph with labels and numbers using the number of underwater animals Emily saw while scuba diving.

Underwater Animals			
Sharks	Stingrays	Starfish	Seahorses
6	9	14	13

Title: _____



a. How many more starfish than sharks did Emily see? _____

b. How many fewer stingrays than seahorses did Emily see? _____

c. Write a comparison question that can be answered using the data on the bar graph.

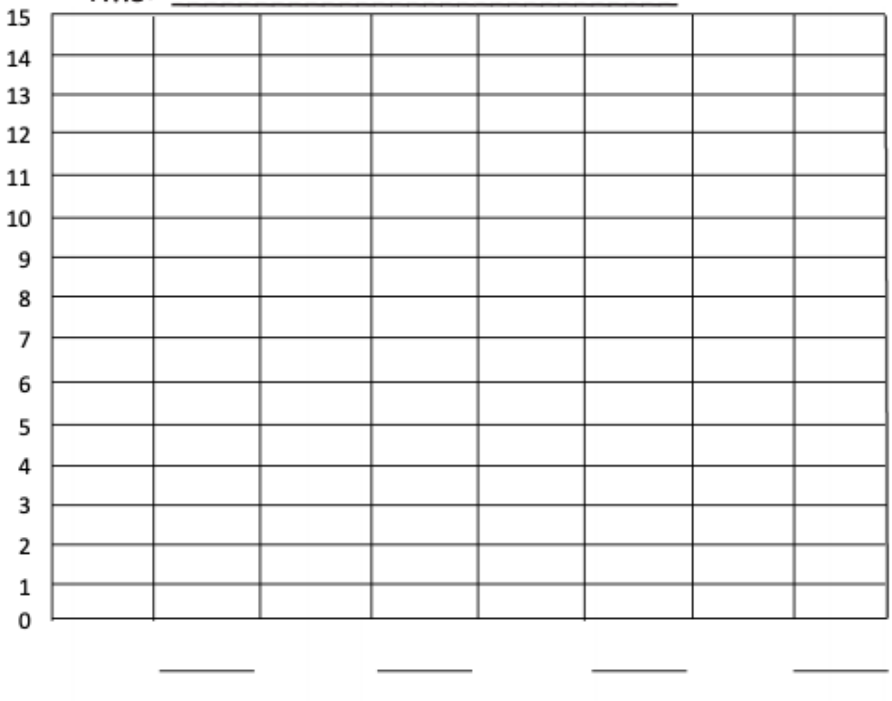
xxviii

23.

Callista saved pennies. Use the table to complete the bar graph. Then, answer the following questions.

Pennies Saved			
Saturday	Sunday	Monday	Tuesday
15	10	4	7

Title: _____



a. How many pennies did Callista save in all? _____

b. Her sister saved 18 fewer pennies. How many pennies did her sister save? _____

c. How much more money did Callista save on Saturday than on Monday and Tuesday? _____

d. How will the data change if Callista doubles the amount of money she saved on Sunday? _____

e. Write a comparison question that can be answered using the data on the bar graph.

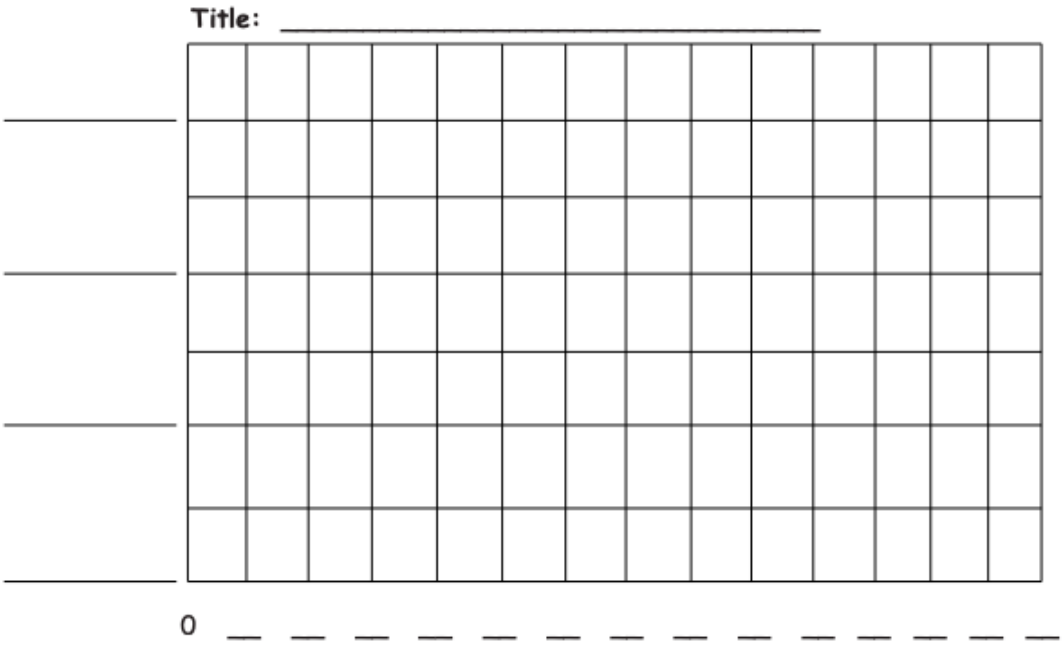
_____

xxix

24.

A group of friends counted their nickels. Use the table to complete the bar graph. Then, answer the following questions.

Amount of Nickels			
Annie	Scarlett	Remy	LaShay
5	11	8	14



a. How many nickels do the children have in all? ___

b. What is the total value of Annie's and Remy's coins? ___

c. How many fewer nickels does Remy have than LaShay? ___

d. Who has less money, Annie and Scarlett or Remy and LaShay? _____

e. Write a comparison question that can be answered using the data on the bar graph.

_____

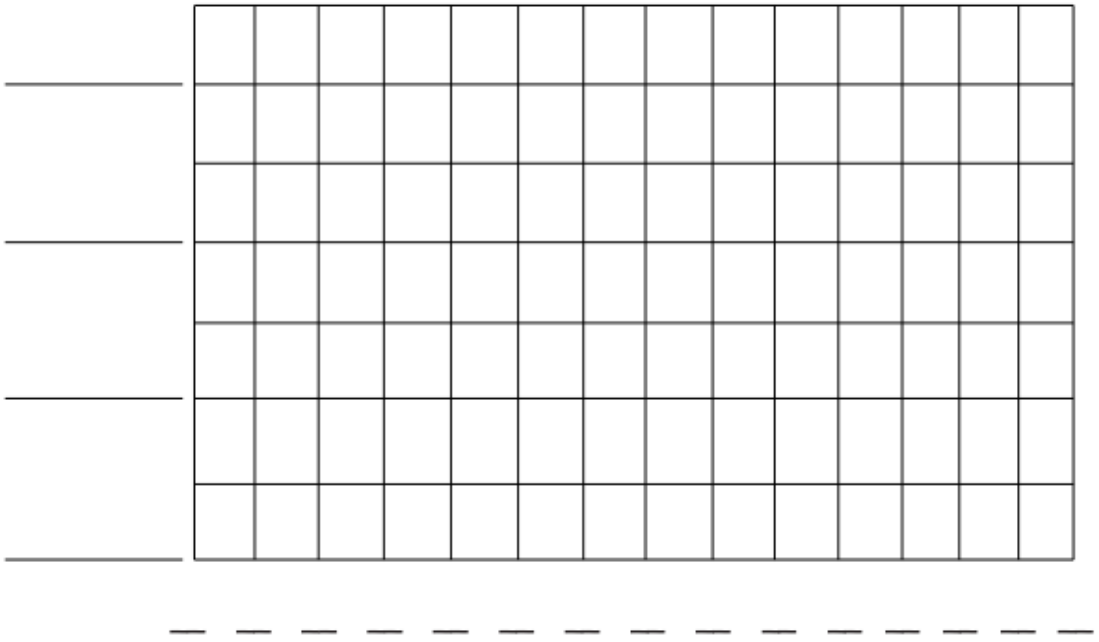
xxx

25. Use the table to complete the bar graph. Then, answer the following questions.

Number of Dimes

Emily	Andrew	Thomas	Ava
8	12	6	13

Title: _____



a. How many more dimes does Andrew have than Emily? _____

b. How many fewer dimes does Thomas have than Ava and Emily? _____

c. Circle the pair with more dimes, Emily and Ava or Andrew and Thomas.
How many more? _____

d. What is the total number of dimes if all the students combine all their money?
_____

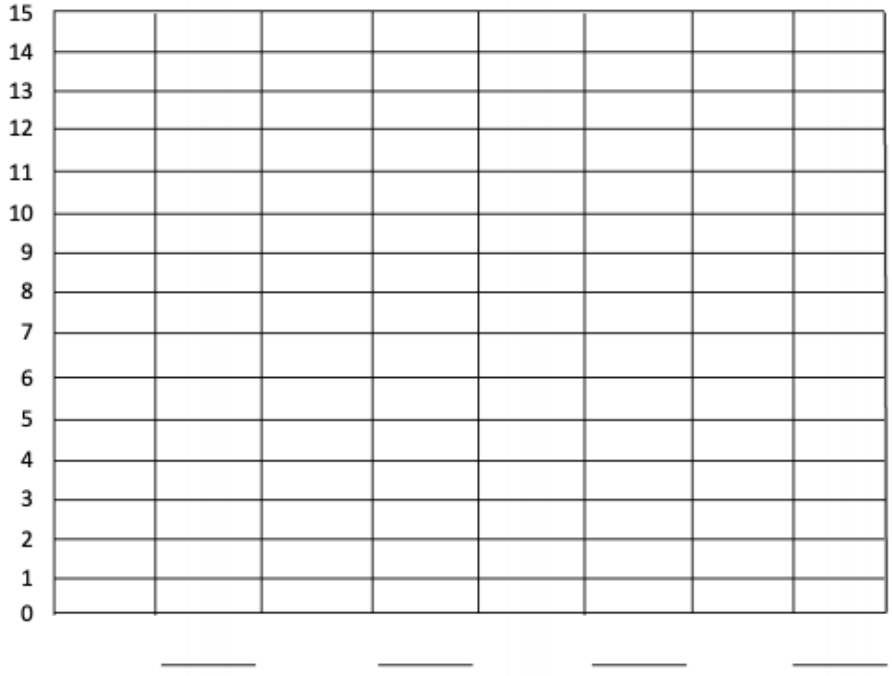
xxxi

26. Use the table to complete the bar graph. Then, answer the following questions.

Number of Dimes Donated

Madison	Robin	Benjamin	Miguel
12	10	15	13

Title: _____



a. How many more dimes did Miguel donate than Robin? _____

b. How many fewer dimes did Madison donate than Robin and Benjamin? _____

c. How many more dimes are needed for Miguel to donate the same as Benjamin and Madison? _____

d. How many dimes were donated? _____

xxxii

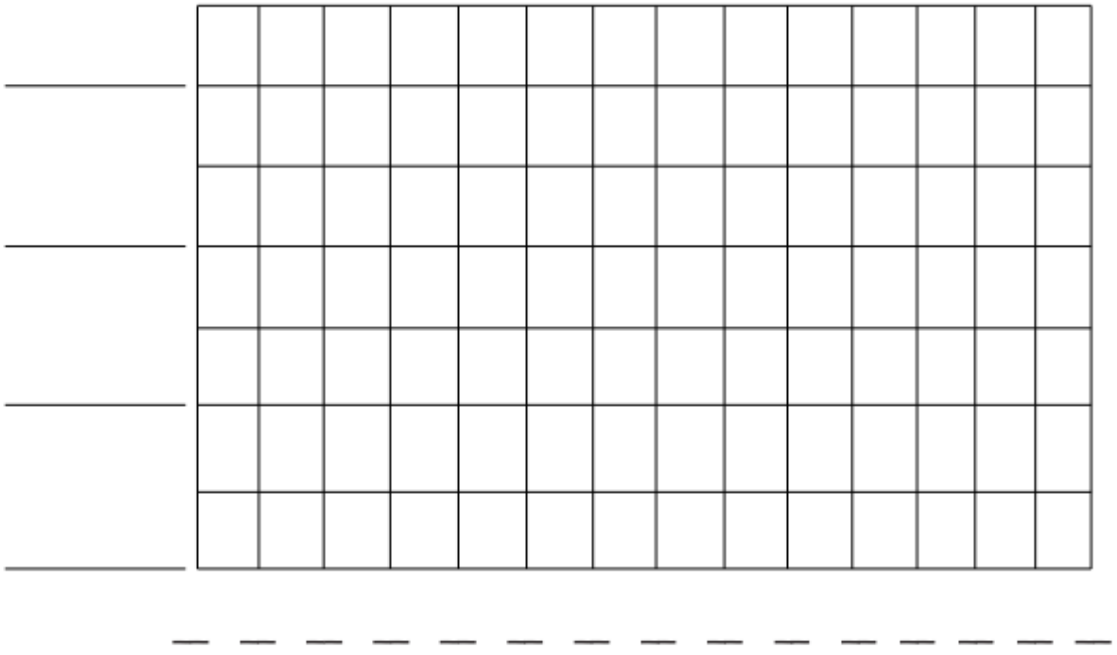
27.

Use the table to complete the bar graph. Then, answer the following questions.

Number of Dimes

Lacy	Sam	Stefanie	Amber
6	11	9	14

Title: _____



a. How many more dimes does Amber have than Stefanie? _____

b. How many dimes will Sam and Lacy need to save to equal Stefanie and Amber?
_____

xxxiii

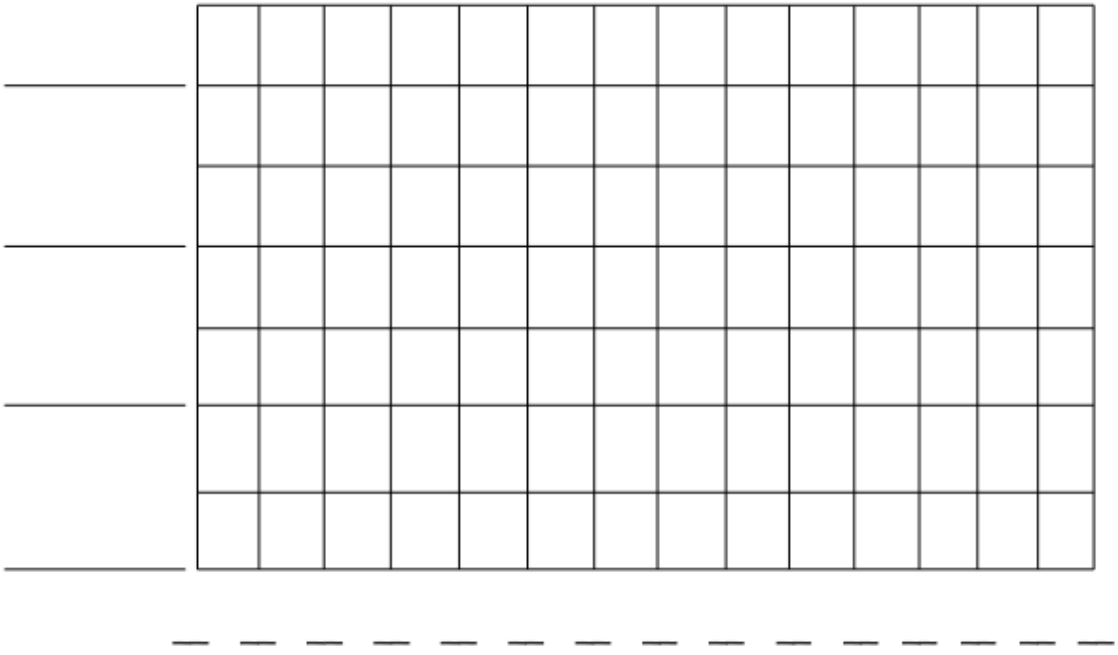
28.

Use the table to complete the bar graph. Then, answer the following questions.

Number of Nickels

Justin	Melissa	Meghan	Douglas
13	9	12	7

Title: _____



a. How many more nickels does Meghan have than Melissa? _____

b. How many fewer nickels does Douglas have than Justin? _____

c. Circle the pair that has more nickels, Justin and Melissa or Douglas and Meghan. How many more? _____

d. What is the total number of nickels if all the students combine all their money?

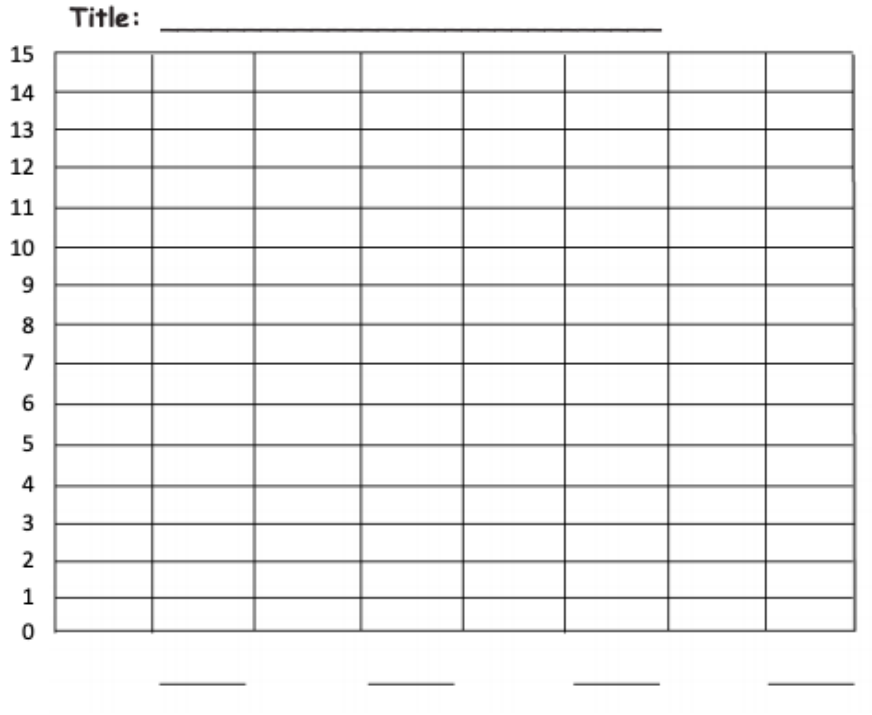
_____

xxxiv

2. Use the table to complete the bar graph. Then, answer the following questions.

Dimes Donated

Kylie	Tom	John	Shannon
12	10	15	13



a. How many dimes did Shannon donate? _____

b. How many fewer dimes did Kylie donate than John and Shannon? _____

c. How many more dimes are needed for Tom to donate the same as Shannon and Kylie? _____

d. How many dimes were donated in total? _____

xxxv

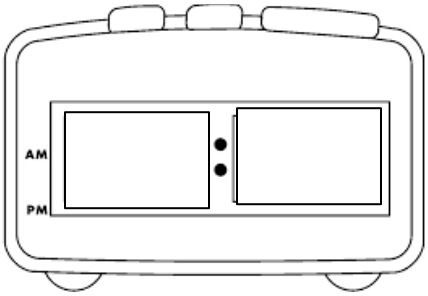
2.MD.C.7 - Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

1. What time is it?

:

:

2. The clock shows when Marco went to bed. Write the same time on the digital clock. Circle AM or PM.



3. What time is on each clock?

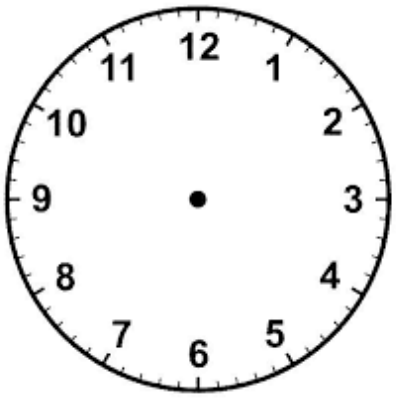
:

:

:

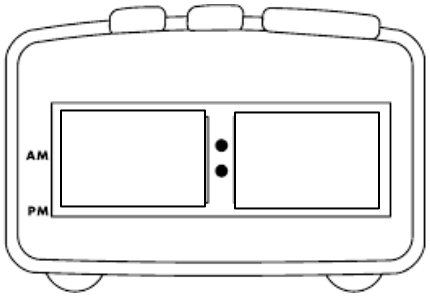
4. The minute hand on the clock points at the 10. What time could it be? Circle **all** of the correct answers.
   a. 10:10
   b. 4:50
   c. 10:20
   d. 8:50
   e. 9:10

5. Eddie's piano lesson starts at 6:40 p.m. Draw the time on the clock below.



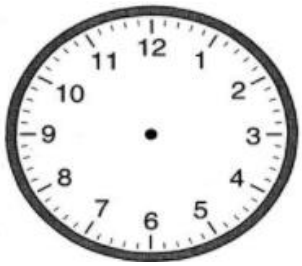
xxxvi

6. The clock shows when Maria gets home from school. Write the same time on the digital clock. Circle AM or PM.

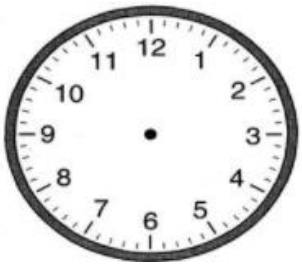


AM **PM**

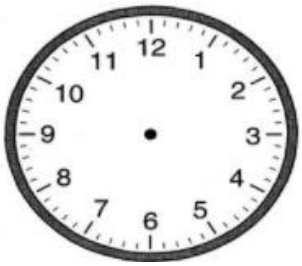
7. Draw the time on each clock.



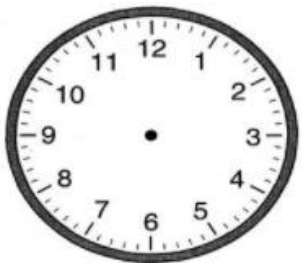
7:55



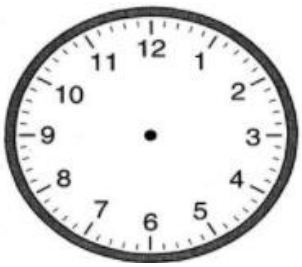
6:15



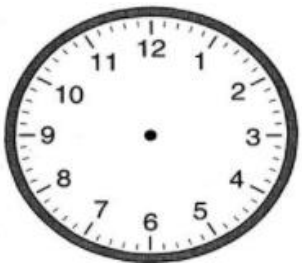
11:35



4:20



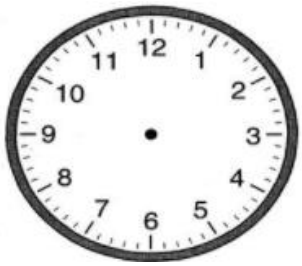
5:25



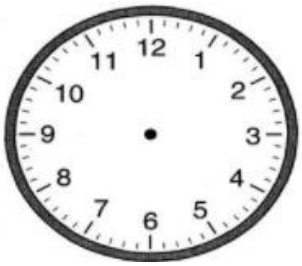
12:10

8. What time is shown on the clock below?

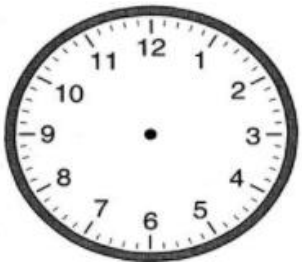
9. Draw the time on each clock.



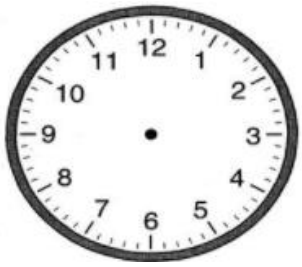
12:25



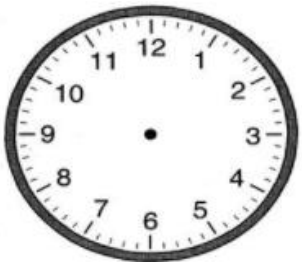
11:50



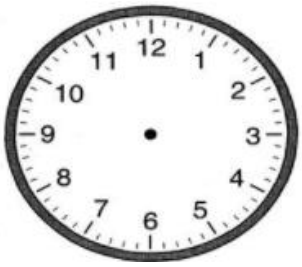
9:40



4:55



8:05

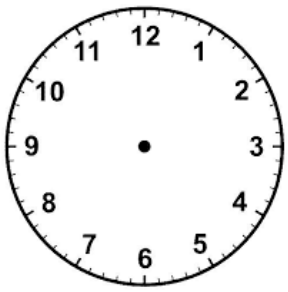


7:35

10. Draw the hands on the analog clock to match the time shown on the digital clock. Then, circle a.m. or p.m. based on the description given.

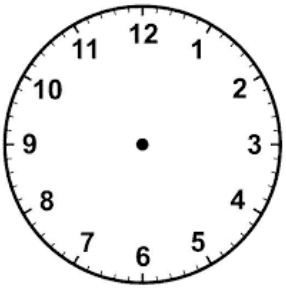
a. Time to get out of bed

6:45 a.m. or p.m.

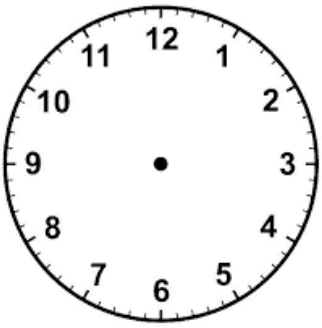


b. Time to go home from school.

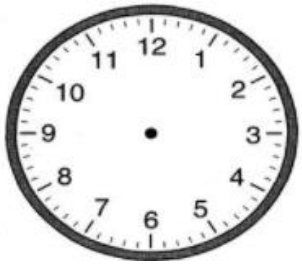
3:20 a.m. or p.m.



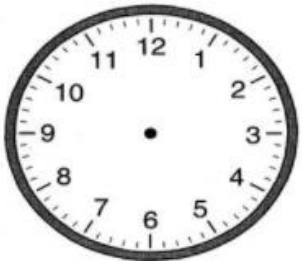
11. Tyshawn eats lunch at 12:25 p.m. Draw the time on the clock below.



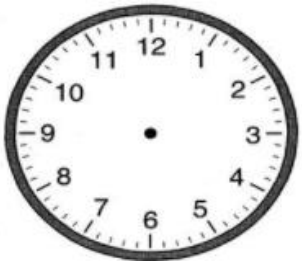
12. Draw the time on each clock.



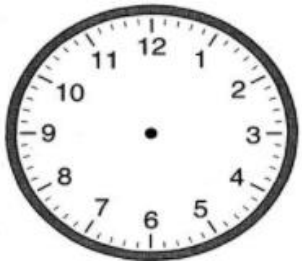
2:05



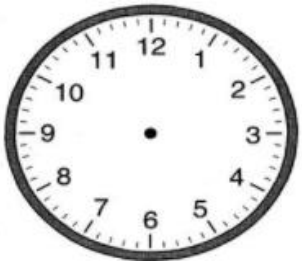
12:20



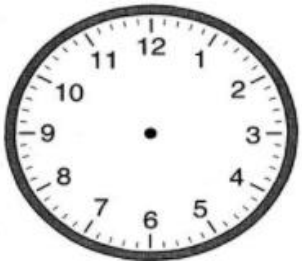
9:45



4:15



8:30



7:55

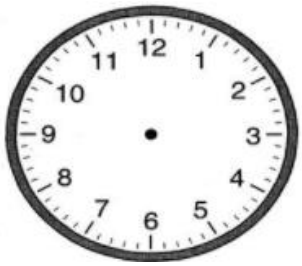
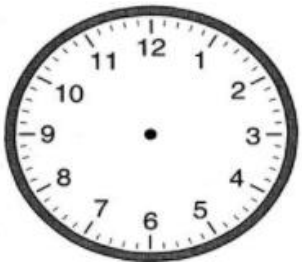
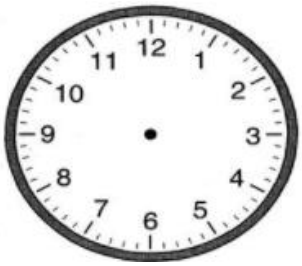
13. The minute hand on the clock points at the 5. What time could it be? Circle **all** of the correct answers.

a. 10:05
b. 8:05
c. 6:25
d. 11:35
e. 5:00
f. 4:25

14. The hour hand on the clock points between the 4 and the 5. What time could it be? Circle **all** of the correct answers.

a. 4:00
b. 5:40
c. 5:00
d. 5:25
e. 4:20
f. 5:45

15. Draw the time on each clock.

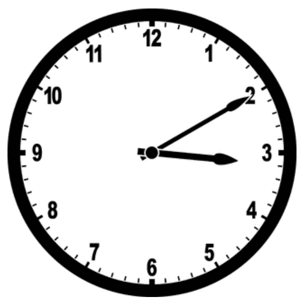




9:35 2:15 10:05

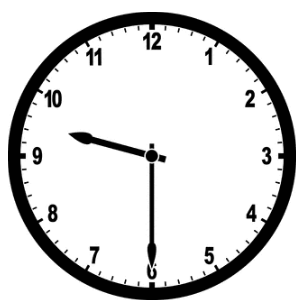
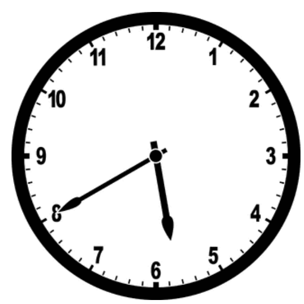
16. What time is it? Write the correct time beneath each clock.

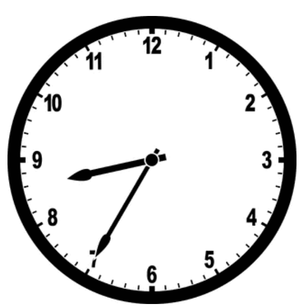
_______ : _______ _______ : _______ _______ : _______

_______ : _______ _______ : _______ _______ : _______

_______ : _______ _______ : _______ _______ : _______

xxxix

_______ : _______ _______ : _______ _______ : _______

Workbook D

2.NBT.A.1 - Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.
Understand the following as special cases:
2.NBT.A.1.A - 100 can be thought of as a bundle of ten tens — called a "hundred."
2.NBT.A.1.B - The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

1. 4 ones + ____ ones = 10

   4 + ____ = 10

2. 7 tens + ____ tens = 1 hundred

   70 + ____ = 100

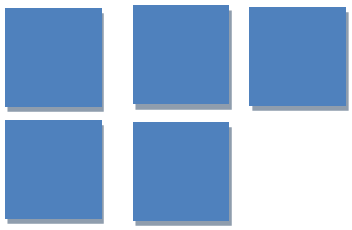
3. Rewrite in order from largest to smallest amount.

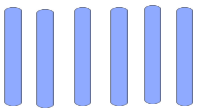
   7 tens 2 hundreds 9 ones

   _____ _____ _____

   Largest Smallest

4. Count each group. What is the total number in each group?





_____ _____ _____

What is the total number? _____

Draw flats, sticks, and dots to represent each number. Then answer the questions.

5. **362**

How many **more ones** will make a ten? _____

How many **more tens** will make a hundred? ____

How many **more hundreds** will make a thousand? _____

6. **705**

How many **more ones** will make a ten? _____

How many **more tens** will make a hundred? ____

How many **more hundreds** will make a thousand? _____

7. **363**

How many **more ones** will make a ten? _____

How many **more tens** will make a hundred? ____

How many **more hundreds** will make a thousand? _____

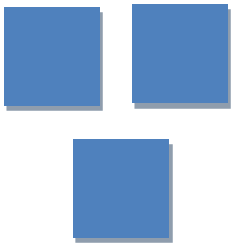
8. **721**

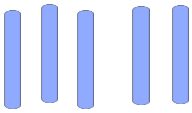
How many **more ones** will make a ten? _____

How many **more tens** will make a hundred? ____

How many **more hundreds** will make a thousand? _____

9. Count each group. What is the total number in each group?





_____ _____ _____

What is the total number? _____

10. 4 ones + ____ ones = 10

4 + ____ = 10

11. 8 tens + ____ tens = 1 hundred

80 + ____ = 100

Draw place value models to represent each number.

12. **723**

13. **209**

14. Write each number in base ten numeral form.

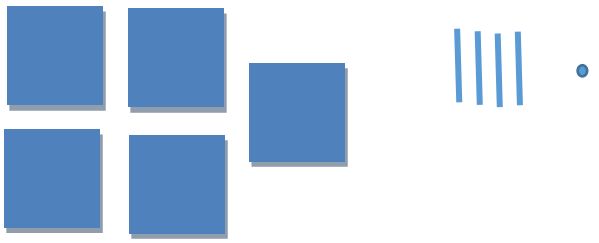
a) 623

Hundreds	Tens	Ones

b) 508

Hundreds	Tens	Ones

15. Count the flats, sticks, and dots. Write each number in standard form and base ten numeral form.



Hundreds	Tens	Ones

Standard form: _____

16. Count the flats, sticks, and dots. Write each number in standard form and base ten numeral form.

Hundreds	Tens	Ones

Standard form: _____

17. Write each number in unit form:

602: _____

796: _____

365: _____

18. What is another way to write 7 ones 4 tens 5 hundreds?

a. 457 b. 754 c. 574 d. 547

19. What is another way to write 7 tens 1 hundred 8 ones?

a. 718 b. 178 c. 871 d. 781

20. Write 206 in unit form.

_____

21. Write 219 in unit form.

_____

22. Write 670 in unit form.

_____

Draw each number in flats, sticks, and dots. Then write the number in unit form.

23. 340

Unit form: _____

24. 272

Unit form: _____

25. Read the unit form and write the number in standard form.

a. 9 hundreds 4 ones = _____

b. 9 tens 4 ones = _____

c. 4 tens 9 ones = _____

26. Lucas has 375 Skittles. Write the amount of Skittles Lucas has in three different ways by filling in the blanks.

Unit Form	
Base Ten Numeral Form	
Place Value Models	

27. Write 291 in unit form.

_____

28. Write 187 in unit form.

_____

29. Write each number in base ten numeral form.

a) 472

Hundreds	Tens	Ones

b) 371

Hundreds	Tens	Ones

2.NBT.A.3 - Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Activity: COUNTING WITH ONES, TENS, AND HUNDREDS: 0 TO 1,000 (4 minutes) Materials: (T) Bundle of 1 hundred, 1 ten, and a single straw Standards: 2.NBT.A.3 and 2.NBT.B.8 EngageNY, Module 3, Lesson 2	Directions: T: Let's count by ones, tens, and hundreds. I'll hold bundles to show you what to count by. A bundle of 100 means count by hundreds, a bundle of 10 means count by tens, and a single straw means count by ones. (Create visual support by writing the numbers on the board as students count.) T: Let's start at 0. Ready? (Hold up a bundle of 10 until students count to 130.) S: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130. T: (Hold up a bundle of 100 until students count to 630.) S: 230, 330, 430, 530, 630. T: (Hold up a bundle of 10 until students count to 690.) S: 640, 650, 660, 670, 680, 690. T: (Hold up a single one until students count to 702.) S: 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702. T: (Isolate the numbers 698–702 by drawing a box around them.) Partner A, count these numbers up and down as fast as you can to Partner B, and then switch. If you both finish before one minute is up, try it again and see if you get faster!
Activity: UNIT FORM COUNTING FROM 398 TO 405 (3 minutes) Materials: (T) Hide Zero cards Standards: 2.NBT.A.3 and 2.NBT.B.8 EngageNY, Module 3, Lesson 6 Hide Zero cards: EngageNY, Module 3, Lesson 4	Directions: T: Today we're going to practice unit form counting. This time we'll include hundreds! The unit form way to say 324 is 3 hundreds 2 tens 4 ones. (Pull the cards apart to show the 300, 20, and 4.) T: Try this number. (Show 398. Signal.) S: 3 hundreds 9 tens 8 ones. T: (Pull cards apart.) That's right! T: Let's count on from 398 the unit form way. (Display 399–405 with Hide Zero cards as students count.) S: 3 hundreds 9 tens 9 ones, 4 hundreds, 4 hundreds 1 one, 4 hundreds 2 ones, 4 hundreds 3 ones, 4 hundreds 4 ones, 4 hundreds 5 ones.

Activity: SKIP-COUNT BY TENS: UP AND DOWN CROSSING 100 (2 minutes) Materials: None Standards: 2.NBT.A.3 and 2.NBT.B.8 EngageNY, Module 3, Lesson 1	Directions: T: Let's skip-count by tens starting at 60. T: Ready? (Rhythmically point up until a change is desired. Show a closed hand and then point down. (Continue, mixing it up.) S: 60, 70, 80, 90, 100, 110, 120, 130, 140. (Switch direction.) 130, 120, 110, 100, 90. (Switch direction.) 100,110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220. (Switch direction.) 210, 200, 190, 180.
Activity: MIXED COUNTING WITH ONES, TENS, AND HUNDREDS FROM 1,000 TO 0 (5 minutes) Materials: (T) Bundle of one hundred, one ten, and a single stick Standards: 2.NBT.A.3 and 2.NBT.B.8 EngageNY, Module 3, Lesson 8	Directions: T: Let's play Mixed Counting using what we know about counting by ones, tens, and hundreds. I'll hold bundles to show you what to count by. A bundle of 100 means count by hundreds, a bundle of 10 means count by tens, and a single stick means count by ones. T: Let's start at 1,000 and count down. Ready? (Hold up a bundle of 10 until students count to 940. If necessary, create visual support with the difficult language of these numbers by writing them on the board as students count.) S: 990, 980, 970, 960, 950, 940. T: (Hold up a bundle of 100 until students count to 540.) S: 840, 740, 640, 540. T: (Hold up a bundle of 10 until students count to 500.) S: 530, 520, 510, 500. T: (Hold up a single one until students count to 495.) S: 499, 498, 497, 496, 495. T: (Hold up a ten until students count to 465.) S: 485, 475, 465. Continue, varying practice counting with ones, tens, and hundreds down to zero.
Activity: SKIP-COUNT BY TWOS BEGINNING AT 394 (7 minutes) Materials: (S) Blank piece of paper Standards: 2.NBT.A.3 and 2.NBT.B.8 EngageNY, Module 3, Lesson 9	Directions: Using a blank piece of paper and a pencil, students count by twos beginning at 394. They write numbers, counting as fast and as high as they can for one minute. "Skip-count by" follows the same energizing routine for administration as Sprints. Like Sprints, after animated correction, an extra minute for independent practice, sharing with a partner, and a brief kinesthetic exercise, students repeat the counting task. The vast majority of students immediately see improvement on the second effort. Celebrate improvement in the same way as with a Sprint.

Activity: SKIP-COUNT UP AND DOWN BY FIVES ON THE CLOCK (11 minutes)
Materials: (T) A "clock" made from a 24-inch ribbon marked off at every 2 inches

Standards: 2.NBT.A.3 and 2.NBT.B.8
Directions:
T: (Display the ribbon as a horizontal number line—example pictured above.) Count by fives as I touch each mark on the ribbon.
S: (Starting with 0, count by fives to 60.)
T: (Make the ribbon into a circle resembling a clock.) Now I've shaped my ribbon to look like a ...
S: Circle! Clock!
T: Let's call it a clock. Again, count by fives as I touch each mark on the clock.
S: (Starting with 0, skip-count by fives to 60.)
T: This time, the direction my finger moves on the clock will show you whether to count up or down.
(While explaining, demonstrate sliding a finger forward and backward around the clock.)
T: As I slide to the marks, you count them by fives.
Starting at 12, slide forward to 4 as students count on. On a clock, 12 represents both 0 and 60. We are not stating 0 so that students count on effectively.
S: 5, 10, 15, 20.
T: How many minutes is that?
S: 20 minutes!
T: (Starting from 4, slide a finger forward to 9. Do not restate 20. Count on.)
S: 25, 30, 35, 40, 45.
T: How many minutes is that?
S: 45 minutes!
T: (Keep a finger at 9.) What if I slide back one mark, then how many minutes?
S: 40 minutes!
T: Good. What if I slide forward one mark, then how many minutes?
S: 45 minutes!
T: Nice job. Let's count back from 50. (Start from 50 and slide back 5 times.)
S: 45, 40, 35, 30, 25.
T: How many minutes now?
S: 25 minutes!

(continued)

Notice which switches or numbers students find most difficult, and use their cues to guide the practice provided.
T: Let's pause for a couple of minutes to think about the tools we've used so far today.
T: With your partner, compare the meter strip to the clock. How are they the same? How are they different?
For about one or two minutes, circulate and listen for responses. Use questioning strategies to support student communication and the level of their insights.
S: They're both curly. Remember our paper meter strips were curly, too. They can both be a straight line.
The clock has 12 marks and the other one has a lot more. You can count with both of them. The clock goes to 60 and the meter strip goes to 100. On one you skip-count by fives and on the other you can skip-count by twos or tens. All the marks on the clock are the same space apart, and the marks on the meter strip are the same space apart. You can use them both to measure. One measures time and one measures length.
T: I hear some of you saying that we use both tools to measure. It's true that clocks and meter strips both measure.
T: What makes them useful for measuring? Talk with your partner for 30 seconds.
S: They both have marks that are the same space apart. The numbers go from smallest to biggest. They're both like rulers, but they have different units. Clocks measure time. We can't see that! It's like they both keep track of our counts. And they both give us a place to count.
T: I used a ribbon to make our clock. What would happen if I moved it back into a horizontal line so that it looked more like a meter strip? Partner A, could I still use it to measure the length of time? Tell Partner B why or why not.
S: I think so. You're not changing the numbers on it. You can still count how many minutes. When you've counted the whole thing, you know an hour went by.
T: (Move the ribbon back into a horizontal line and present it to students near the meter strip for a visual comparison.) Partner B, tell Partner A why you agree or disagree.
S: I disagree. There are no little hands to tell you where to count and tell you how many minutes have gone by.
T: Keep thinking and talking about these two measurement tools. Ask your parents what they think!

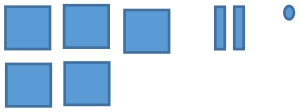
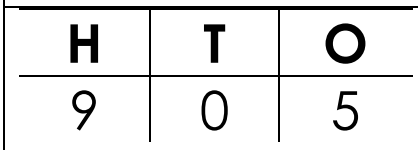
EngageNY, Module 3, Lesson 1

In this second round, add a new layer of complexity to the work to keep students challenged and engaged. The following is a suggestion for how to adapt the routine explained above.
T: Skip-count by 5 until my finger stops. (Slide a finger to 4.)
S: 5, 10, 15, 20.
T: (From 4, slide a finger forward to 9.) Keep counting as I move my finger.
S: 25, 30, 35, 40, 45.
T: How many minutes have passed in all?
S: 45 minutes!
T: (Keep a finger at 9.) How many is 10 minutes less?
S: 35 minutes!
T: Good. (Put a finger back at 9.) How many is 10 minutes more?
S: 55 minutes!

EngageNY, Module 3, Lesson 2

Activity: HAPPY COUNTING (2 minutes) Materials: (T) Two meter sticks Notes: Students fluently count by tens crossing the hundred and relate it to metric units. Standards: 2.NBT.A.3 and 2.NBT.B.8 EngageNY, Module 2, Lesson 6	Directions: T: Let's do some Happy Counting in centimeters. Watch me as I pinch the meter stick where the centimeters are while we count. When I get to 100 centimeters (1 meter), I will call a volunteer to hold another meter stick. T: Let's count by tens, starting at 70 centimeters. When we get to 100 centimeters, we say 1 meter, and then we will go back to counting by centimeters. Ready? (Pinch the meter stick to stop on a number, moving pinched fingers up and down to lead students in Happy Counting by tens on the meter stick.) S: 70 cm, 80 cm, 90 cm, 1 m, 110 cm, 120 cm. (Switch direction.) 110 cm, 1 m, 90 cm, 80 cm. (Switch direction.) 90 cm, 1 m, 110 cm, 120 cm. T: Now, let's say it with meters and centimeters. Let's start at 80 centimeters. Ready? S: 80 cm, 90 cm, 1 m, 1 m 10 cm, 1 m 20 cm, 1 m 30 cm, 1 m 40 cm. (Switch direction.) 1 m 30 cm, 1 m 20 cm. (Switch direction.) 1 m 30 cm, 1 m 40 cm, 1 m 50 cm, 1 m 60 cm, 1 m 70 cm, 1 m 80 cm, 1 m 90 cm, 2 m.
Activity: HAPPY COUNTING BY CENTIMETERS (4 minutes) Materials: None Notes: Students practice counting by 10 centimeters and exchanging centimeters for meters. This activity relates to Say Ten counting, where ones are exchanged for tens. It can be demonstrated on a Rekenrek, with each bead representing 10 centimeters. Standards: 2.NBT.A.3 and 2.NBT.B.8 EngageNY, Module 2, Lesson 9	Directions: T: Let's count by 10 centimeters, starting at 80 centimeters. When we get to 100 centimeters, we say 1 meter, and then we will count by meters and centimeters. Ready? (Rhythmically point up until a change is desired. Show a closed hand, then point down. Continue, mixing it up.) S: 80 cm, 90 cm, 1m, 1m 10 cm, 1 m 20 cm, 1 m 30 cm, 1 m 40 cm, 1 m 50 cm. (Switch direction.) 1 m 40 cm, 1 m 30 cm, 1 m 20 cm. (Switch direction.) 1 m 30 cm, 1 m 40 cm, 1 m 50 cm, 1 m 60 cm, 1 m 70 cm, 1 m 80 cm, 1 m 90 cm, 2 m. (Switch direction.) 1 m 90 cm. (Switch direction.) 2 m, 2 m 10 cm, 2 m 20 cm. (Switch direction.) 2 m 10 cm, 2 m, 1 m 90 cm. T: Excellent! Try it for 30 seconds with your partner starting at 80 centimeters. Partner B, you are the teacher today.

1. Fill in the table by writing the numbers in word form and standard form.

Starting Number	Standard Form	Word Form
6 hundreds, 2 ten, 7 ones		
		
		

2. Re-write each number from word form to standard form.

Starting Number	Standard Form
Three hundred twenty	
Seventy-two	
One hundred eighty-four	

3. Write 419 in word form

_____

4. Write 265 in unit form

_____

5. Write 804 in word form

_____

6. Write 140 in unit form

_____

7. Write in standard form

a. Two hundred thirty-six = _____

b. Five hundred seven = _____

c. 2 hundreds, 5 tens, 3 ones = _____

d. Six hundred thirteen = _____

e. 4 hundreds, 8 tens = _____

8. **418 =**	9. **seven hundred thirty =**	10. **4 tens 7 ones =**
○ Four hundred eighty-one ○ Four hundred ten-eight ○ Four hundred eighteen ○ Forty-one eight	○ 73 ○ 730 ○ 703 ○ 713	○ 47 ○ 470 ○ 74 ○ 407

11. Fill in the missing parts of the chart.

Standard Form	Place Value models (flats, sticks, and dots)	Unit Form	Word Form
694			
			
		5 tens, 3 hundreds	
204			
			Five hundred seventy

12. Write in standard form

f. Two hundred seventy-four = _____

g. Seven hundred sixty = _____

h. 8 ones, 2 hundreds, 7 tens = _____

i. Four hundred six = _____

j. 3 hundreds, 6 tens = _____

13. Write in word form

k. 726 = _____

l. 8 hundreds, 3 tens = _____

m. 5 hundreds, six tens, 4 ones = _____

n. 902 = _____

o. 2 hundreds, 9 tens, 2 ones = _____

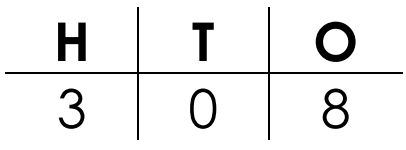
Fill in all answers that apply. You may choose more than one answer.

14. **250 =**	15. **671 =**	16. **715 =**
○ Two hundred five ○ Two hundred fifty ○ 2 hundreds, 5 tens ○ Two hundreds, 5 ones	○ 6 hundreds, 7 tens, 1 one ○ Six hundred seventeen ○ 6 hundreds, 1 ten, 7 ones ○ Six hundred seventy-one	○ Seven hundred fifteen ○ Seven hundred fifty ○ 7 hundreds, 5 tens ○ 5 ones, 1 ten, 7 hundreds

17. Fill in the missing parts of the chart.

Standard Form	Place Value models (flats, sticks, and dots)	Unit Form	Word Form
		2 hundreds, 3 ones	
			
			Eight hundred twenty
711			
			Five hundred thirty-six

18. Fill in the table by writing the numbers in word form and standard form.

Starting Number	Standard Form	Word Form
8 hundreds, 9 tens, 7 ones		
		
		

H	T	O
3	0	8

19. Write each number in standard form and expanded form.

	Standard Form	Expanded Form
Three hundred fifty-two	352	300 + 50 + 2
Eight hundred seventy-one		
5 tens, 4 hundreds, 8 ones		
One hundred twelve		
4 ones, 3 hundreds, 5 tens		

20. Write the answer in standard form.

Expanded Form	Standard Form
500 + 30 + 2	
70 + 600 + 8	
5 + 200	
40 800 + 7	

Write the answer in standard form.

21. 2 + 50 + 300 =

22. 700 + 3 + 10 =

23. 50 + 800 + 9 =

24. 20 + 600 + 1 =

Write the answer in standard form. Then write each number in expanded form.

25. 1 hundred, 5 tens, 7 ones

Standard form: _____

Expanded form:

26. 3 hundreds, 6 ones

Standard form: _____

Expanded form:

27. 8 hundreds, 2 tens

Standard form: _____

Expanded form:

28. 4 hundreds, 1 ten, 7 ones

Standard form: _____

Expanded form:

Write each number in expanded form.

29. 831

30. 430

31. 792

32. 203

2.NBT.A.4 - Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

1. Use the numbers 467 and 463 to complete each number sentence.

_____ > _____ _____ < _____

Why can you write two different number sentences to compare 467 and 463?

_____

_____

_____

2. Write < or > in each blank.

624 _____ 594 104 _____ 140 790_____ 709 592 _____ 700

291 _____ 219 98 _____ 110 608_____ 779 435 _____ 453

3. Compare the two numbers using <, >, or =.

a. 411 _____ 40 tens, 11 ones

b. 400 + 20 + 1 _____ 4 hundreds, 2 tens, 21 ones

c. 300 + 50 + 12 _____ 3 hundreds, 5 tens, 2 ones

4. Choose **True** or **False** for each number sentence.

	True	**False**
Five hundred fifty-one > 500 + 30 + 9		
824 < 88 tens, 9 ones		
7 Hundreds, 7 tens = 700 + 10 + 7		
400 + 22 < 425		

5. Jill and Iman each write a three-digit number.

Jill's number: 305

Iman's number: 3 hundreds, 5 tens

Which number sentence compares their numbers correctly?

a. 305 < 305
b. 305 = 305
c. 350 > 305
d. 350 < 305

6. Kim and Jon tossed beanbags at a target. The grey numbers are the numbers that their beanbags landed on.

Kim		
1	2	3
4	5	6
7	8	9

Jon		
1	2	3
4	5	6
7	8	9

What is the greatest number that Kim can make? _____

What is the greatest number Jon can make? _____

Whose number is greater? Write a comparison below using < or >.

_____ _____

7. Write < or > in each blank.

204 _____ 24 454 _____ 405 970_____ 709 342 _____ 600

391 _____ 319 918 _____ 111 681_____ 792 353 _____ 535

192 _____ 199 718 _____ 511 612_____ 92 303 _____ 350

8. Choose True or False for each comparison. Put an X in the box for each statement.

	True	**False**
5 hundreds 51 ones > 539		
900 + 20 + 4 < 88 tens 9 ones		
700 + 70 = 70 tens 7 ones		
422 < 425		

9. Write one of these numbers on each line to make each statement true.

308 380 390

_____ > 386

38 tens = _____

_____ < 384

10. Which number sentence is true?

a. 43 tens 1 one < 400 + 20 + 7

b. 540 > 5 hundreds 41 ones

c. 727 < 772

d. 9 hundreds 6 tens > 906

11. Write < or > in each blank.

411 _____ 243 402 _____ 521 740_____ 409 428 _____ 650

791 _____ 794 328 _____ 231 781_____ 772 313 _____ 351

234 _____ 423 778 _____ 711 127_____ 292 343 _____ 450

12. Compare the two numbers using <, >, or =.

a. 300 + 130 + 1 _____ 42 tens, 11 ones

b. 400 + 20 + 1 _____ 40 tens, 21 ones

c. 100 + 150 + 12 _____ 2 hundreds, 5 tens, 2 ones

d. 4 hundreds, three tens _____ 42 tens, 11 ones

e. 200 + 40 + 10 _____ 20 tens, 50 ones

f. 100 + 30 + 1 _____ 10 tens, 13 ones

13. Circle whether the statement is **True** or **False.** Prove your answer by drawing flats, sticks, and dots.

50 + 300 + 3 > 3 hundreds, 5 tens, 26 ones

14. Circle whether the statement is **True** or **False.** Prove your answer by drawing flats, sticks, and dots.

Seven hundred seventeen < 600 + 110 + 3

True **False**

15. Write < or > in each blank to make the comparison sentence true.

264 _____ 454 154 _____ 250 709_____ 780 172 _____ 200

299 _____ 320 101 _____ 99 618_____ 581 325 _____ 352

16. Jayden and Brenda each write a three-digit number.

Jayden's number: 100 + 30 + 7

Brenda's Number: 1 hundred, 30 tens, 7 ones

Which number sentence compares their numbers correctly?

a. 173 > 137

b. 137 = 137

c. 137 < 1307

d. 137 < 407

17. Write < or > in each blank.

324 _____ 234	689 _____ 655	145_____ 234	569 _____ 695
102 _____ 210	376 _____ 215	533_____ 612	901 _____ 199
254 _____ 343	255 _____ 632	43_____ 430	291 _____ 301

18. Phil has 248 trading cards. Sean has more trading cards than Phil. How many cards could Sean have? Circle **all** of the correct answers.

a. 239

b. 245

c. 252

d. 260

19. Write one of these numbers in each box to make a true number sentence.

308 380 390

☐ > three hundreds, 86 ones

☐ = 38 tens

☐ < 300 + 70 + 14

2.NBT.B.8 - Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

1. Solve each problem using **mental math.**

678 + 100 = _____	678 + 10 = _____	876 + 100 = _____
78 + 10 = _____	35 + 100 = _____	723 + 10 = _____
158 + 100 = _____	435 + 100 = _____	876 + 10 = _____
203 + 100 = _____	203 + 10 = _____	550 + 100 = _____
800 + 10 = _____	800 + 100 = _____	676 + 10 = _____
387 + 100 = _____	409 + 10 = _____	409 + 100 = _____

2. Use mental math to solve 324 + 100 = _____.

3. Solve each problem using **mental math.**

328 - 100 = _____	435 - 10 = _____	678 - 100 = _____
328 - 10 = _____	235 - 100 = _____	723 - 10 = _____
158 - 100 = _____	200 - 100 = _____	200 - 10 = _____
305 - 100 = _____	305 - 10 = _____	850 - 100 = _____
850 - 10 = _____	902 - 100 = _____	473 - 10 = _____
387 - 100 = _____	904 - 10 = _____	904 - 100 = _____

4. Use mental math to solve 875 - 10 = _____.

5. Solve each problem using **mental math.**

832 + 100 = _____	524 - 10 = _____	178 + 100 = _____
208 - 10 = _____	530 + 100 = _____	523 - 10 = _____
218 - 100 = _____	700 - 10 = _____	325 +10 = _____
870 + 100 = _____	807 + 10 = _____	421 - 100 = _____

6. Use **mental math** to fill in the missing number that makes each equation true.

534 - _____ = 524	902 - _____ = 892	247 + _____ = 347
758 + _____ = 858	635 + _____ = 645	703 + _____ = 713
198 + _____ = 208	354 - _____ = 254	876 - _____ = 776
201 - _____ = 101	201 -10 = _____	795 + 100 = _____

7. Use **mental math** to fill in the missing number that makes each equation true.

_____ - 10 = 478	_____ + 100 = 350	_____ - 10 = 723
_____ - 100 = 712	_____ - 10 = 796	_____ +10 = 796
_____ + 100 = 796	_____ -100 = 397	_____ + 100 = 404
575 - _____ = 565	211 -_____ = 111	899+ 10 = _____

8. Fill in the missing numbers.

125 + _____ = 225

506 – _____ = 496

_____ + 100 = 764

9. Fill in the missing numbers on the chart using mental math.

Number	10 More	10 Less	100 More	100 Less
476				
261				
852				

10. Choose True or False for each equation.

	True	False
234 + 10 = 334		
541 –100 = 441		
764 – 10 = 774		
100 + 56 = 156		

Workbook E

2.NBT.B.7 - Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; justify the reasoning used with a written explanation. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

1. Calculate.

265 - 137	651 - 243	945 – 328 = _____
545 + 129 = _____	523 + 273	417 + 258

2. Solve. Show all of your work:

425 + 357 = _____

3. Solve. Show all of your work.

703 – 466 = _____

4. Use the number line to solve. Show your work.

578 + 237 = _____

5. Solve. Show all of your work:

721 - 573 = _____

6. Solve. Show all of your work.

293 + 409 = _____

7. Use expanded notation to solve the problem. Show your work.

578 + 237 = _____

8. Calculate.

605 - 327	708 - 439	875 – 218 = _____
575 + 219 = _____	238 + 573	117 + 582

9. Calculate.

673 - 137	433 - 182	745 –_____ = 196
515 + _____ = 729	763 + 256	442 + 328

10. Find the missing number to make the statement true. Show your work.

$$\_\_\_\_\_ = 504 - 286$$

11. Solve. Show all of your work.

$$800 - \_\_\_\_\_ = 500 - 354$$

12. Use the space below to solve the problem correctly. Show your work.

$$603 - 246 = \_\_\_\_\_$$

13. Calculate.

903 - 465	922 - 573	721 – 238 = _____
495 + 129 = _____	243 + 713	317 + 458

14. Solve. Show your work.

203 + 318	832 - 627
304 + 339	638 - 219
740 - 226	436 + 418

15. Solve to find the missing numbers.

142 + _____ = 225

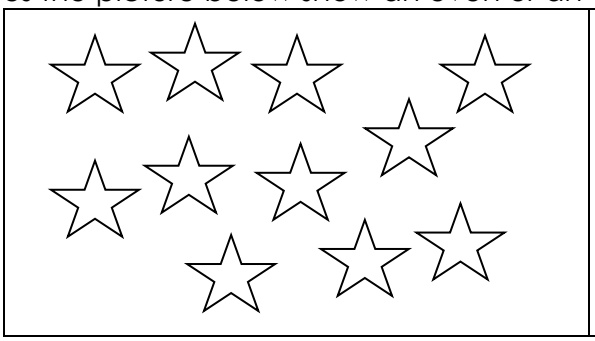
506 – _____ = 329

_____ + 344 = 764

Workbook F

2.OA.C.3 - Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

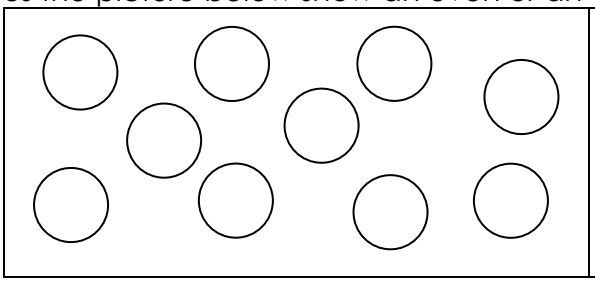
1. Does the picture below show an even or an odd number of stars?



draw a picture to show how you know

Even or Odd

2. Does the picture below show an even or an odd number of circles?



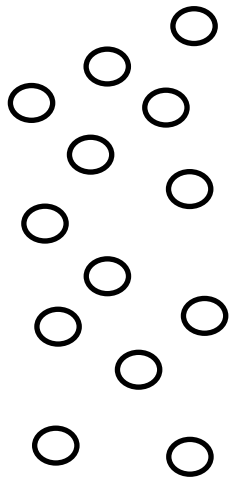
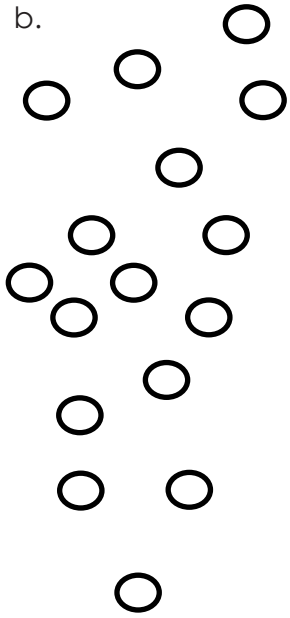
draw a picture to show how you know

Even or Odd

3. Draw a picture to show whether the number is odd or even.

Number	Drawing	Odd or Even?
9		
14		
17		
6		
13		
8		
14		
10		

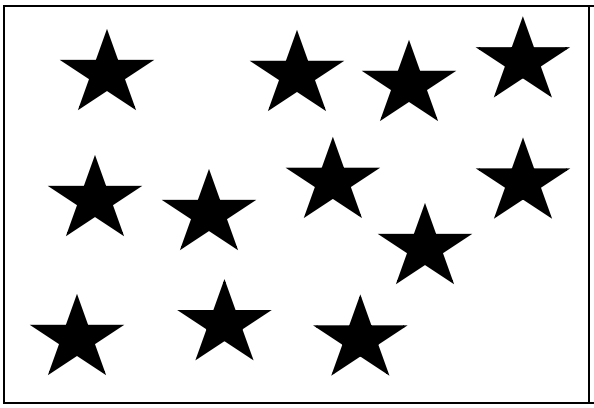
4. Use pairs or teams to determine if a number is odd or even

a. 	Picture: **Odd** or **Even**	Redraw your picture with 1 *less* circle. **Odd** or **Even**
b. 	Picture: **Odd** or **Even**	Redraw your picture with 1 *more* circle. **Odd** or **Even**

5. There is an odd number of students in Miss Jackson's class. Which of the following could be the number of students in the class? Circle all answers that could be true.

- ☐ 16
- ☐ 18
- ☐ 19
- ☐ 20
- ☐ 21
- ☐ 23

6. Does the picture below show an even or an odd number of stars?



Draw a picture to show how you know.

Even or Odd

7. Write to identify the **bold** numbers as even or odd. The first one has been done for you.

a. **6** + 1 = **7** even + 1 = odd	b. **14** + 1 = **15** _____ + 1 = _____	c. **61** + 1= **62** _____ + 1 = _____
d. **17** + 1 = **18** _____ + 1 = _____	e. **93** + 1= **94** _____ + 1 = _____	f. **52** + 1= **53** _____ + 1 = _____

8. Predict if the answer to each number sentence will be even or odd. Solve the number sentence to prove if your prediction was correct.

Number Sentence	Even or Odd?	Solution
10 + 17= _____		
21 + 12 = _____		
30 +15 = _____		

9. Are the **bold** numbers even or odd? Explain how you know using words or pictures.

a. **29** even/odd	
b. **36** even/odd	
c. **54** even/odd	
d. **70** even/odd	
a. **81** even/odd	
b. **32** even/odd	

10. Write the numbers from 75 to 85 in the boxes below. Circle the **even** numbers.

11. Write the numbers from 68 to 78 in the boxes below. Circle the **odd** numbers.

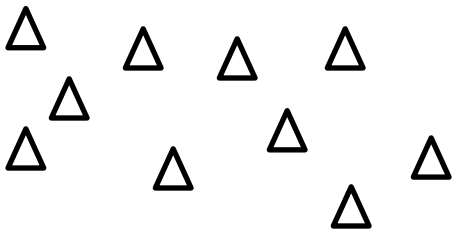
12. Write the numbers from 125 to 135 in the boxes below. Circle the **even** numbers.

13. Write the numbers from 23 to 33 in the boxes below. Circle the **odd** numbers.

14. Write the numbers from 208 to 218 in the boxes below. Circle the **even numbers.**

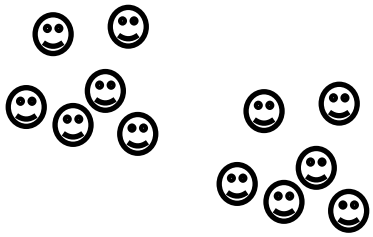
2.OA.C.4 - Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

1. Circle groups of five. Then, draw the triangles into equal rows of five.



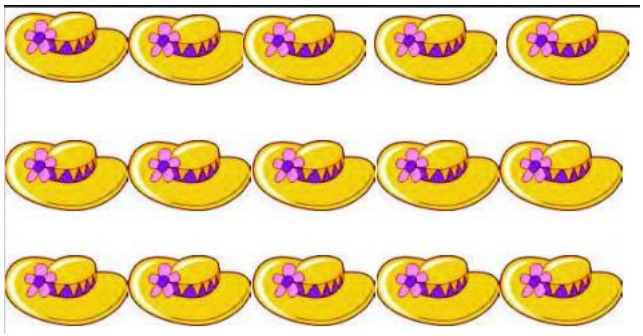
There are _____ rows of _____.

2. Circle groups of three. Redraw the groups of three as rows.



There are _____ rows of _____.

3. Anna Beth is organizing her hats. She put them into a rectangular array to try to find out how many total hats she has.



Write an addition equation and then solve to find out how many hats she has.

_____ = _____

4. Create a rectangular array using circles to solve the equation below.

4 + 4 + 4 + 4 + 4 = _____

5. Draw 2 columns of 3 squares. Then write a repeated addition equation that explains your array.

_____ = _____

6. A library has 4 fiction books on each of 3 shelves. Draw an array using circles to represent the books on the library shelves.

Write a repeated addition equation to represent the books on the library shelves and then solve to tell how many total books are on the shelves.

_____ = _____

7. Alicia is trying to decide how she will eat her candy that she got as a treat from her grandma. Her mom said that she would have two choices for the candy:

Choice 1: Get 3 pieces a day for the next 3 days.

Choice 2: Get 2 pieces a day for the next 4 days.

a. Draw an array for each choice.

b. Which way would Alicia get more candy?

_____

8. Write an equation to match the array and then solve.

_____ = _____

9. Create and array to match the number sentence. Then solve.

5 + 5 + 5 = _____

10. Allie has 18 jellybeans. She made a rectangular array so she could count them easily. Draw an array that Allie could have made and write a repeated addition number sentence to match.

_____ **=** _____

11. Draw circles to match and then solve.

2 + 2 + 2 + 2 + 2 + = _____

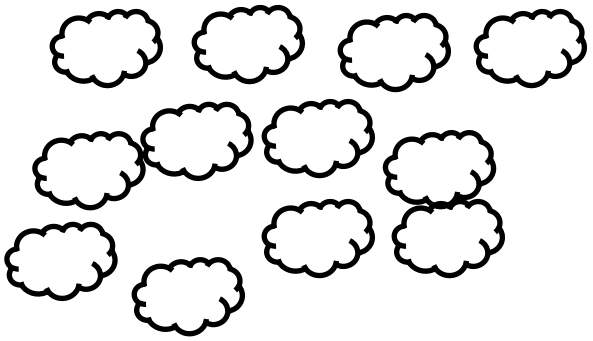
12. Construct an array with 16 squares on the grid below.

Write a repeated addition equation to match the array.

_____ rows with ____ in each row **=** _____ in all

_____ **=** _____

13. Circle groups of three. Then, draw the clouds into equal columns.



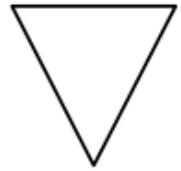
There are _____ columns of _____.

There are _____ clouds in all.

Workbook G

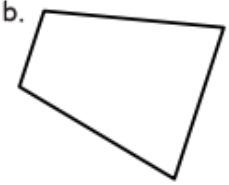
2.G.A.1 – Recognize and draw shapes having specified attributes, such as a given number of angels or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

1. Identify the number of sides and angles for each shape. Circle each angle as you count, if needed. The first one has been done for you.

a. 

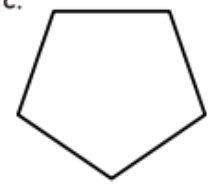
3 sides

3 angles

b. 

____ sides

____ angles

c. 

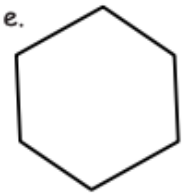
____ sides

____ angles

d. 

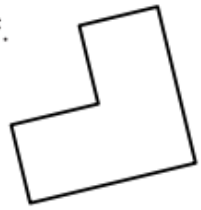
____ sides

____ angles

e. 

____ sides

____ angles

f. 

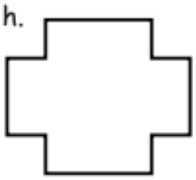
____ sides

____ angles

g. 

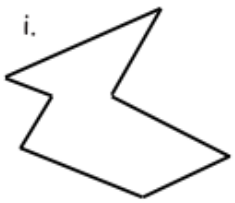
____ sides

____ angles

h. 

____ sides

____ angles

i. 

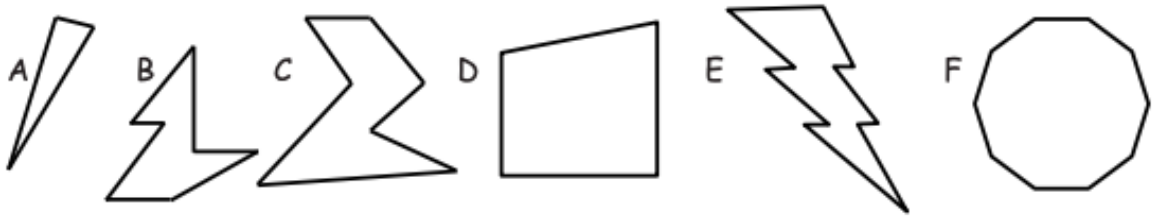
____ sides

____ angles

xl

2.

Study the shapes below. Then, answer the questions.



a. Which shape has the most sides? _____

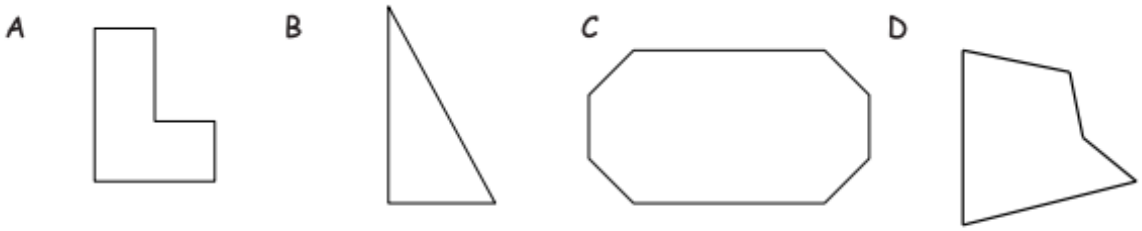
b. Which shape has 3 more angles than shape C? _____

c. Which shape has 3 fewer sides than shape B? _____

d. How many more angles does shape C have than shape A? _____

e. Which of these shapes have the same number of sides and angles? _____

3.



Which shape has the most sides? _____

. Which shape has 3 fewer angles than shape C? _____

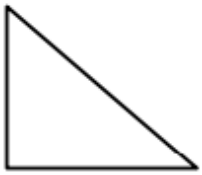
. Which shape has 3 more sides than shape B? _____

. Which of these shapes have the same number of sides and angles? _____

xli

4.

Identify the number of sides and angles for each shape. Circle each angle as you count, if needed.

a. 

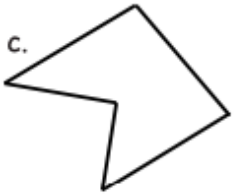
_____ sides

_____ angles

b. 

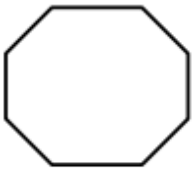
_____ sides

_____ angles

c. 

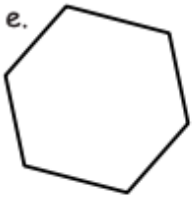
_____ sides

_____ angles

d. 

_____ sides

_____ angles

e. 

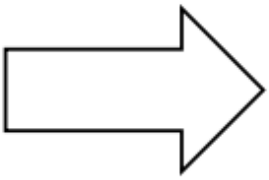
_____ sides

_____ angles

f. 

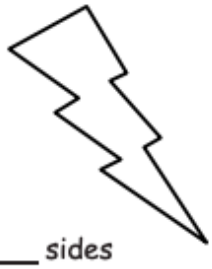
_____ sides

_____ angles

g. 

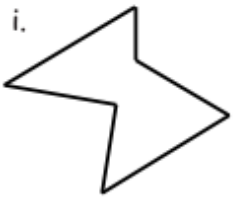
_____ sides

_____ angles

h. 

_____ sides

_____ angles

i. 

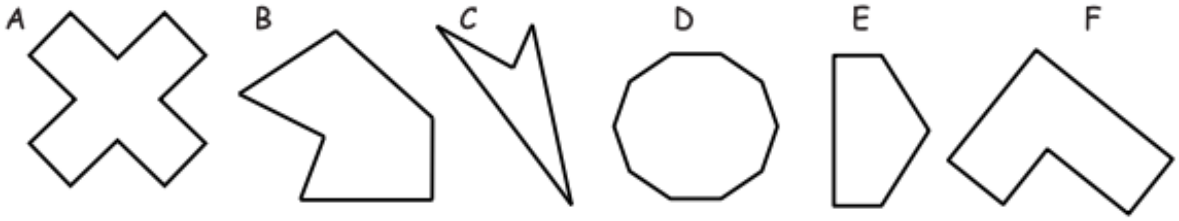
_____ sides

_____ angles

xlii

5.

Study the shapes below. Then, answer the questions.



a. Which shape has the most angles? _____

b. Which shape has 4 more angles than shape F? _____

c. Which shape has 5 fewer sides than shape D? _____

d. How many more angles does shape A have than shape B? _____

e. Which of these shapes have the same number of sides and angles? _____

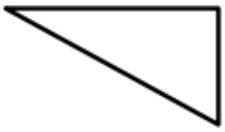
xliii

6.

1. Count the number of sides and angles for each shape to identify each polygon. The polygon names in the word bank may be used more than once.

Hexagon	Quadrilateral	Triangle	Pentagon

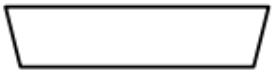
a. 

b. 

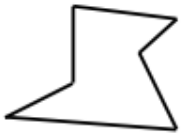
c. 

d. 

e. 

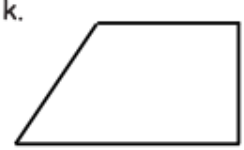
f. 

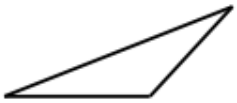
g. 

h. 

i. 

j. 

k. 

l. 

xliv

7.

Count the number of sides and angles for each shape to identify each polygon.
The polygon names in the word bank may be used more than once.

Hexagon	Quadrilateral	Triangle	Pentagon

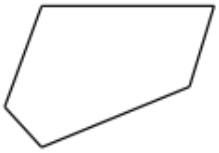
1. 

2. 

3. 

4. 

5. 

6. 

xlv

8.

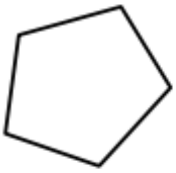
. Count the number of sides and angles for each shape to identify each polygon. The polygon names in the word bank may be used more than once.

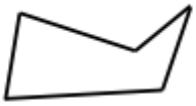
Hexagon	Quadrilateral	Triangle	Pentagon

a. 

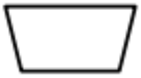
b. 

c. 

d. 

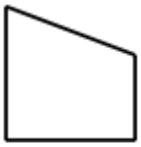
e. 

f. 

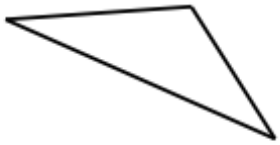
g. 

h. 

i. 

j. 

k. 

l. 

xlvi

9.

Use a straightedge to draw the polygon with the given attributes in the space to the right.

a. Draw a polygon with 3 angles.

Number of sides: _____

Name of polygon: _____

b. Draw a five-sided polygon.

Number of angles: _____

Name of polygon: _____

c. Draw a polygon with 4 angles.

Number of sides: _____

Name of polygon: _____

d. Draw a six-sided polygon.

Number of angles: _____

Name of polygon: _____

xlvii

10. Use your straightedge to draw 2 new examples of each polygon that are different from those you drew in number 9.

a. Triangle

b. Pentagon

c. Quadrilateral

d. Hexagon

11.

Use a straightedge to draw the polygon with the given attributes in the space to the right.

Draw a five-sided polygon.

Number of angles: _____

Name of polygon: _____

12.

Use a straightedge to draw the polygon with the given attributes in the space to the right.

a. Draw a polygon with 4 angles.

Number of sides: _____

Name of polygon: _____

b. Draw a six-sided polygon.

Number of angles: _____

Name of polygon: _____

c. Draw a polygon with 3 angles.

Number of sides: _____

Name of polygon: _____

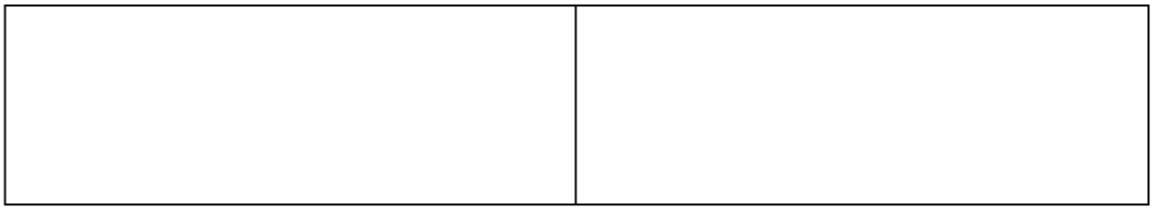
d. Draw a five-sided polygon.

Number of angles: _____

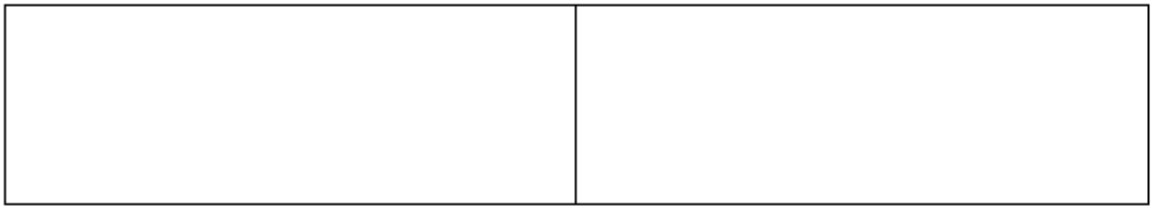
Name of polygon: _____

13. Use your straightedge to draw 2 new examples of each polygon that are different from those you drew in number 12.

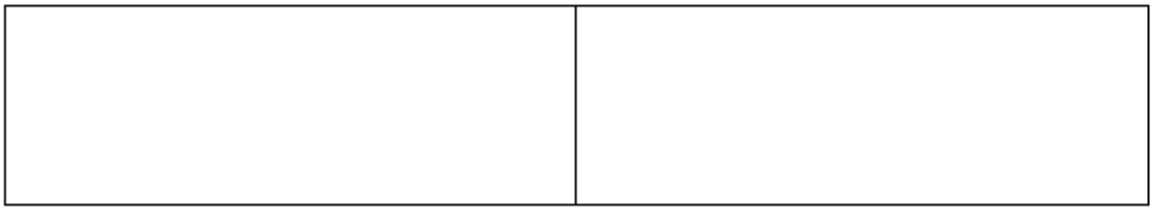
a. Quadrilateral



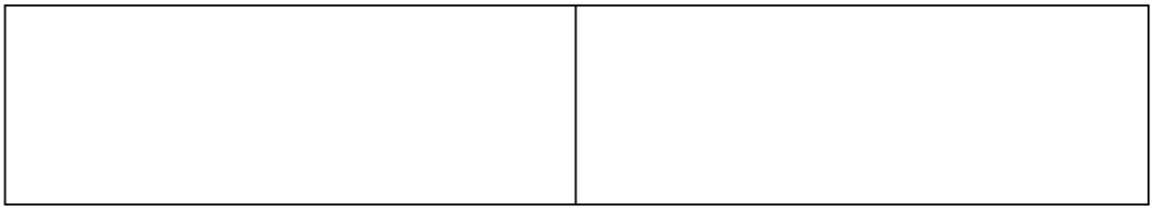
b. Hexagon



c. Pentagon



d. Triangle



14.

2.G.A.2 – Partition a rectangle in to rows and columns of same-size squares and count to find the total number of them.

1. Draw without using a square tile to make an array with 2 rows of 5.

2 rows of 5 = _____

_____ + _____ = _____

2. Draw without using a square tile to make an array with 4 columns of 3.

4 columns of 3 = _____

_____ + _____ + _____ + _____ = _____

3. Complete the following arrays without gaps or overlaps. The first tile has been drawn for you.

a. 3 rows of 4

b. 5 columns of 3

c. 5 columns of 4

5.

Draw an array of 3 columns of 3 starting with the square below without gaps or overlaps.

6. Draw an array with 3 rows of 5.

Write an equation to show the total number of squares: _____

7. Draw an array with 2 rows of 6.

Write an equation to show the total number of squares: _____

8. Draw an array with 8 rows of 2.

Write an equation to show the total number of squares: _____

2. Draw an array with 3 rows of 2.

Write an equation to show the total number of squares: _____

3. Draw an array with 4 rows of 2.

Write an equation to show the total number of squares: _____

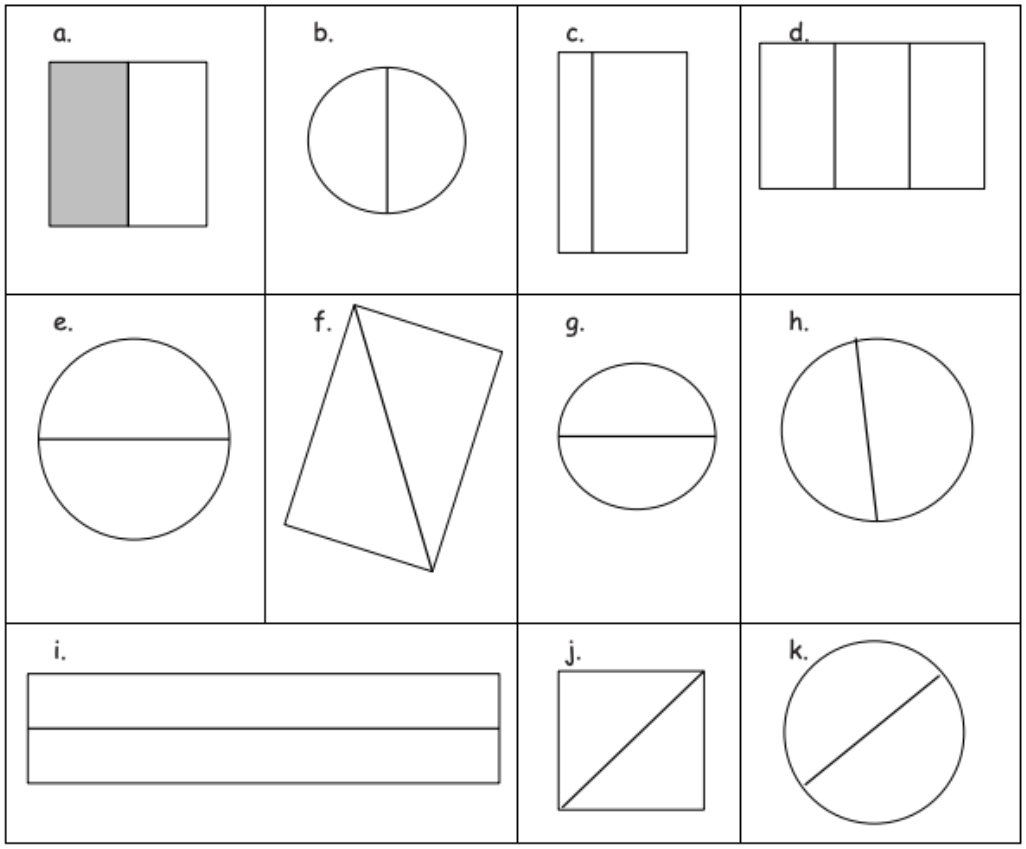
4. Draw an array with 6 rows of 3.

Write an equation to show the total number of squares: _____

2.G.A.3 – Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

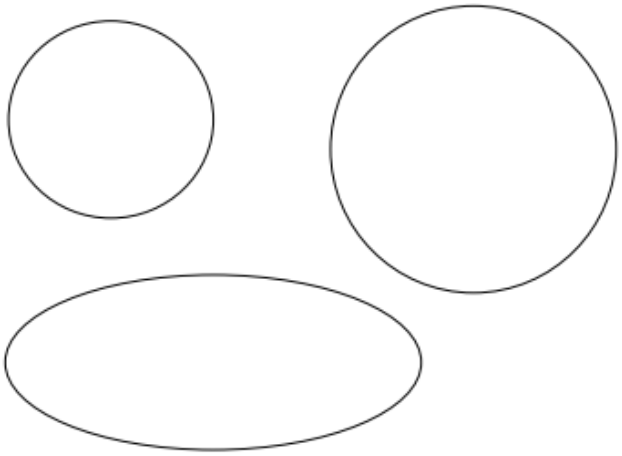
1. Circle the shapes that have 2 equal shares with 1 share shaded.

2. Shade 1 half of the shapes that are split into 2 equal shares. One has been done for you.

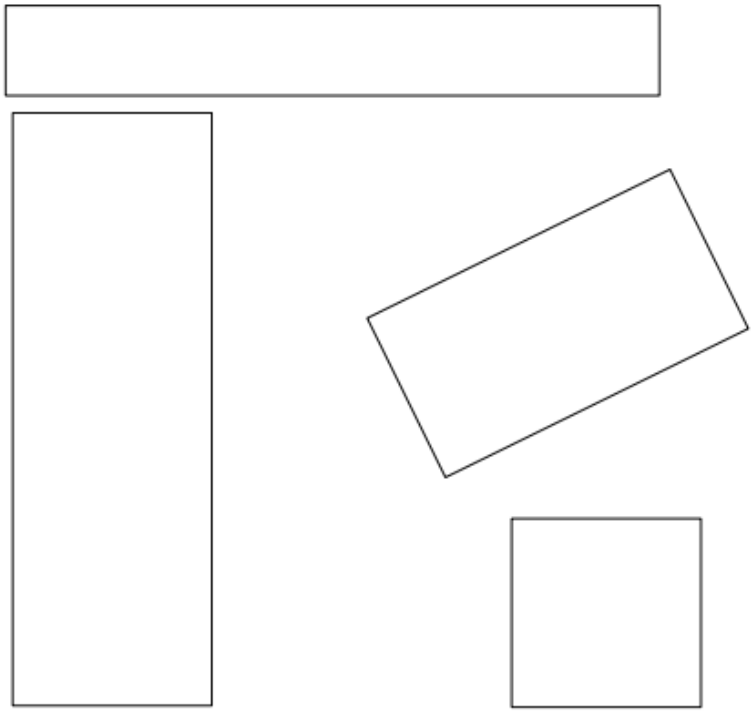


3.

a.



b.



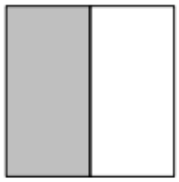
li

4.

Circle the shapes that have 2 equal shares with 1 share shaded.

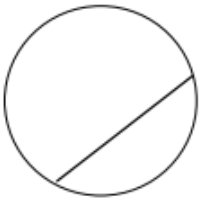
5. Shade 1 half of the shapes that are split into 2 equal shares. One has been done for you.

a.



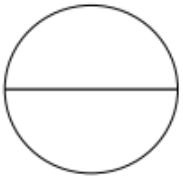
b.

c.

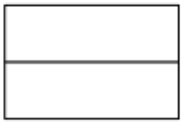


d.

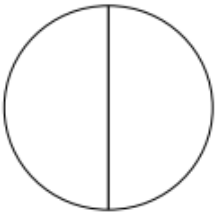
e.



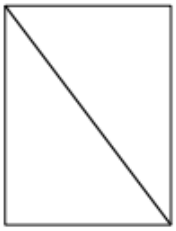
f.



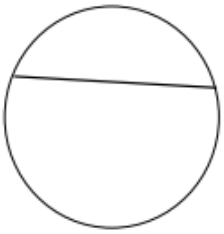
g.



h.

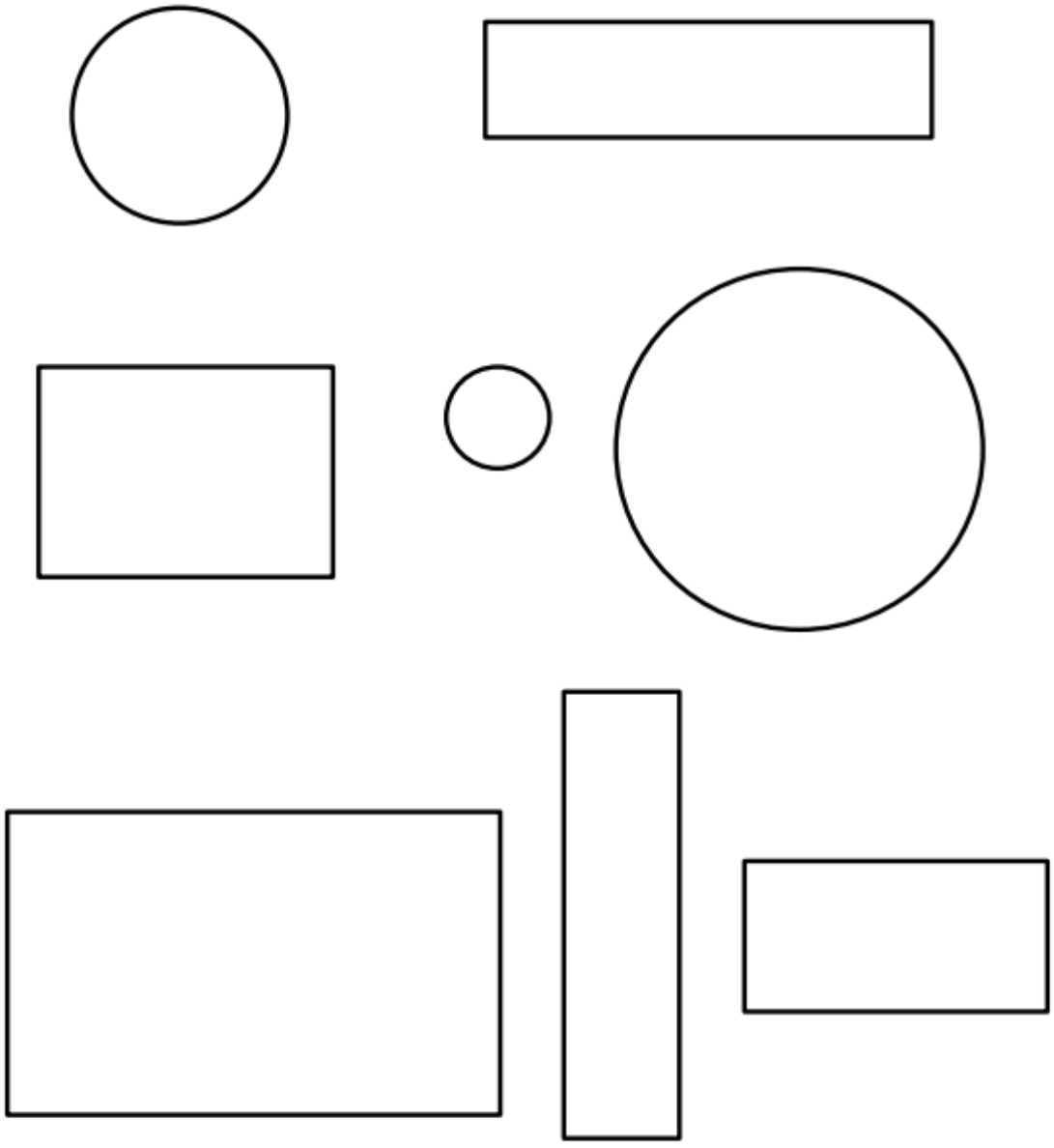


i.



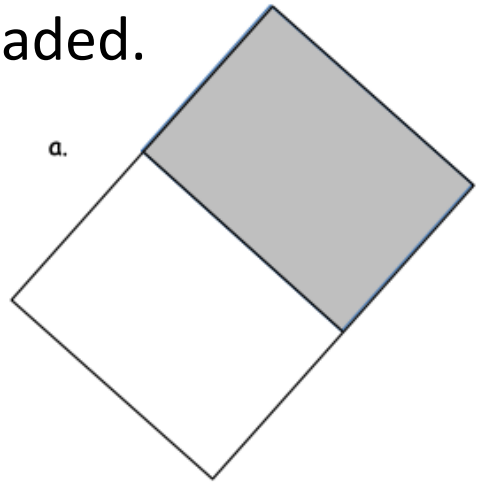
6. lii

Partition the shapes to show halves. Shade 1 half of each.

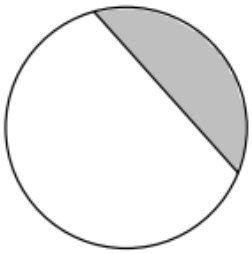


7. Circle the images that show ½ shaded.

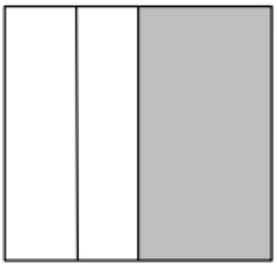
a.



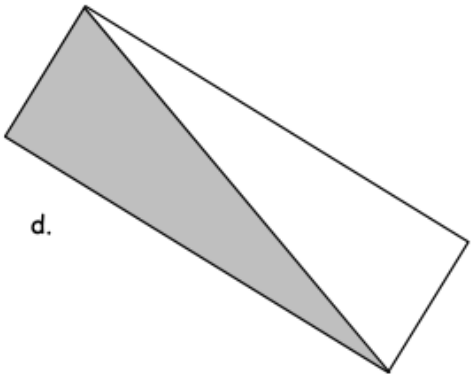
b.



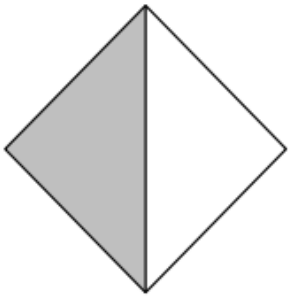
c.



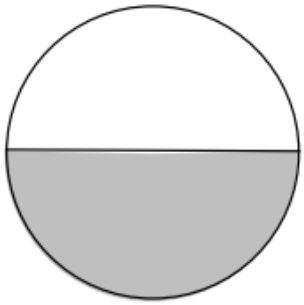
d.



e.



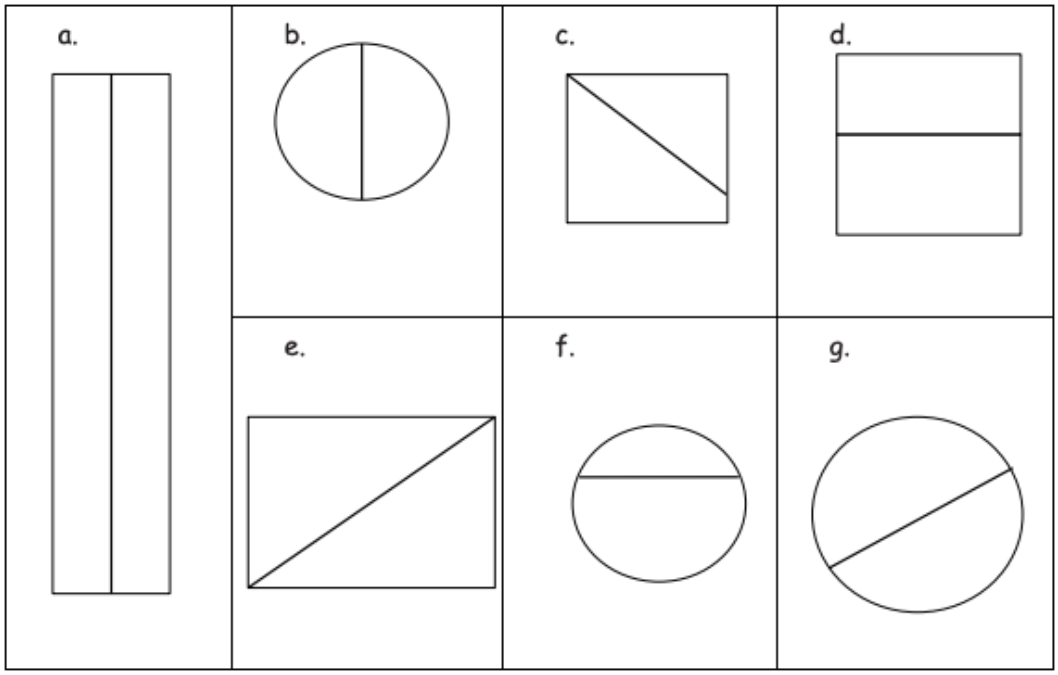
f.



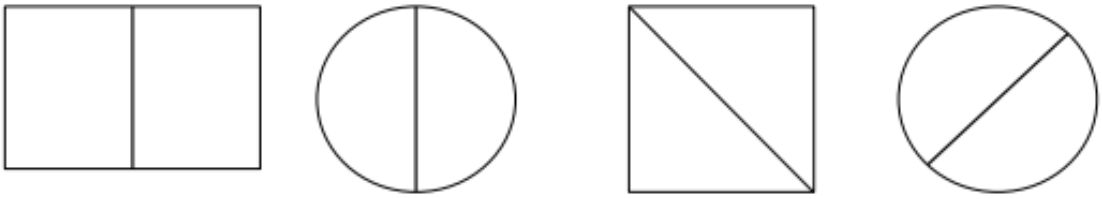
liii

8.

Shade 1 half of the shapes that are split into 2 equal shares.



a. Do the shapes in Problem 1(a) show halves or thirds? _____



b. Draw 1 more line to partition each shape above into fourths.

liv

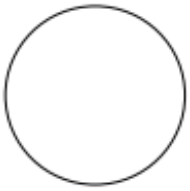
9. Partition each rectangle into thirds. Then, shade the shapes as indicated.

3 thirds

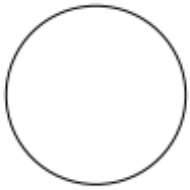
2 thirds

1 third

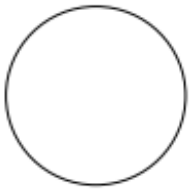
10. Partition each circle into fourths. Then, shade the shapes as indicated.



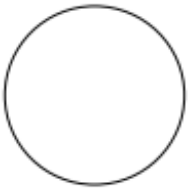
4 fourths



3 fourths



2 fourths



1 fourth

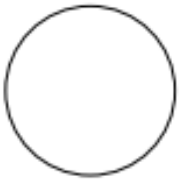
lv

11.

Partition and shade the following shapes as indicated. Each rectangle or circle one whole.

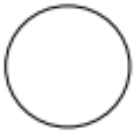
a. 1 fourth

b. 1 third



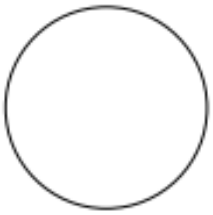
c. 1 half

d. 2 fourths

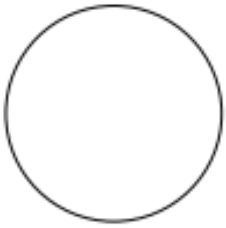


e. 2 thirds

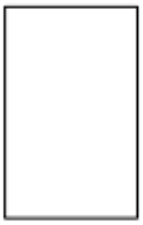
f. 2 halves



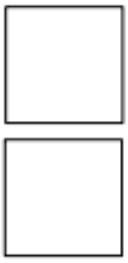
g. 3 fourths



h. 3 thirds

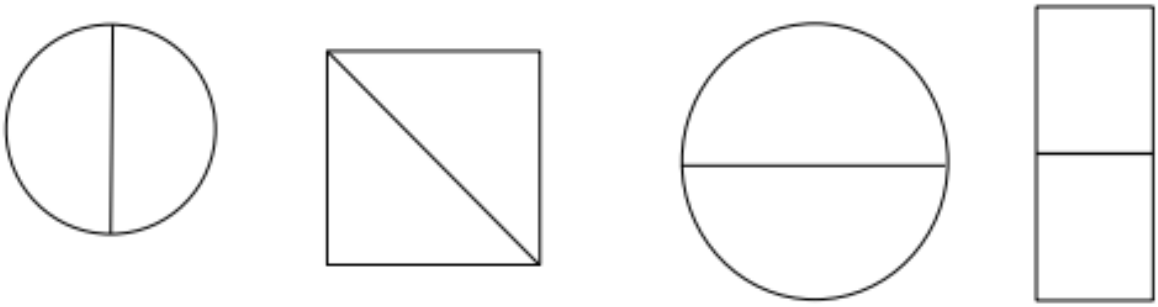


i. 3 halves



lvi

12. a. Do the shapes below show halves or thirds? _____

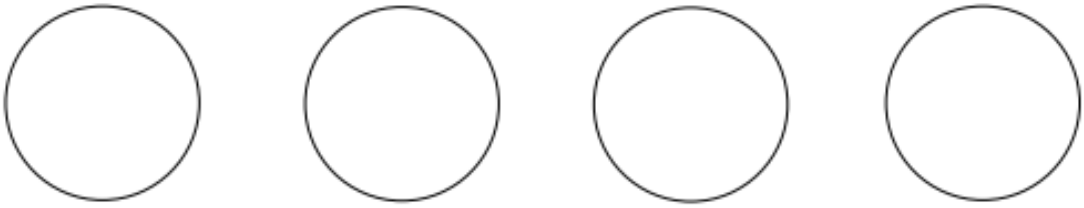


b. Draw 1 more line to partition each shape above into fourths.

13. Partition each rectangle into thirds. Then, shade the shapes as indicated.

2 thirds 1 third 3 thirds

14. Partition each circle into fourths. Then, shade the shapes as indicated.



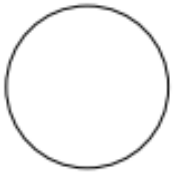
1 fourth 3 fourths 4 fourths 2 fourths

lvii

15.

Partition and shade the following shapes. Each rectangle or circle is one whole.

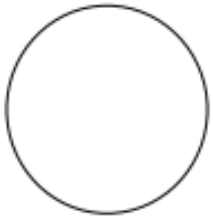
a. 1 half



b. 1 fourth

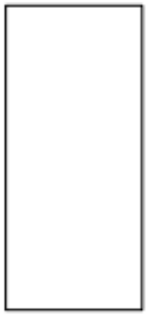
c. 1 third

d. 2 fourths



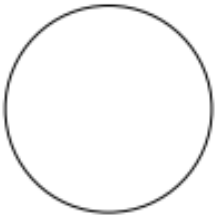
e. 2 halves

f. 2 thirds

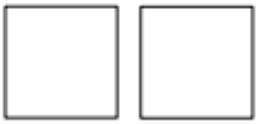


g. 3 thirds

h. 3 fourths



i. 3 halves

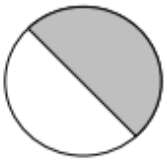


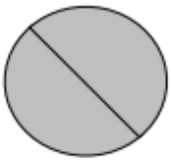
lviiilix

16.

For Parts (a), (c), and (e), identify the shaded area.

a.





_____ half _____ halves

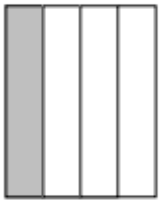
b. Circle the shape above that has a shaded area that shows 1 whole.

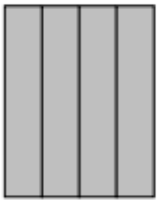
c.

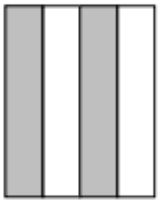
_____ third _____ thirds _____ thirds

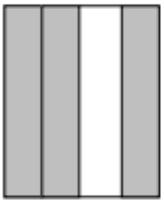
d. Circle the shape above that has a shaded area that shows 1 whole.

e.









_____ fourth _____ fourths _____ fourths _____ fourths

f. Circle the shape above that has a shaded area that shows 1 whole.

lx

17.

Complete the drawing to show 1 whole.

a. This is 1 half.
Draw 1 whole.

b. This is 1 third.
Draw 1 whole.

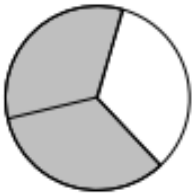
c. This is 1 fourth.
Draw 1 whole.

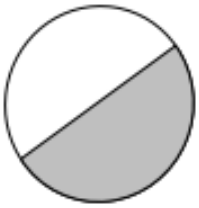
What fraction do you need to color so that 1 whole is shaded?

a. 

b. 

c. 

d. 

e. 

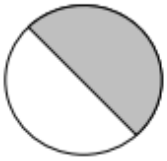
f. 

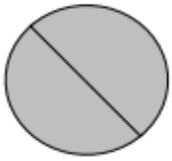
lxi

18.

For Parts (a), (c), and (e), identify the shaded area.

a.



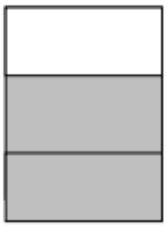


_____ half

_____ halves

b. Circle the shape above that has a shaded area that shows 1 whole.

c.



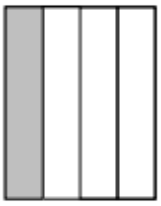
_____ third

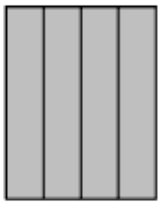
_____ thirds

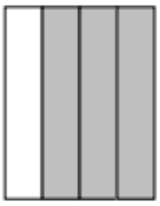
_____ thirds

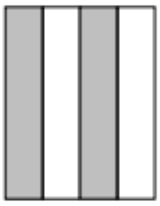
d. Circle the shape above that has a shaded area that shows 1 whole.

e.









_____ fourth

_____ fourths

_____ fourths

_____ fourths

lxii

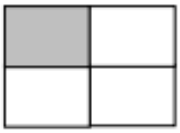
19. What fraction do you need to color so that 1 whole is shaded?

a. 

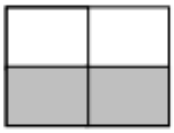
_____

b. 

_____

c. 

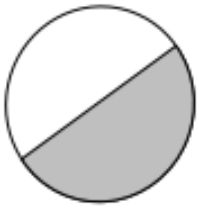
_____

d. 

_____

e. 

_____

f. 

_____

20. Complete the drawing to show 1 whole.

a. This is 1 half.
Draw 1 whole.

b. This is 1 third.
Draw 1 whole.

c. This is 1 fourth.
Draw 1 whole.

lxiii

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