EUREKA MATH PUSD

A Story of Units

Pleasanton UNIFIED SCHOOL DISTRICT **Mathematics Curriculum**

Grade 2 • MODULE 6
Foundations of Multiplication and Division

HOMEWORK

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GRADE 2 • MODULE 6

Foundations of Multiplication and Division

Name _____ Date _____

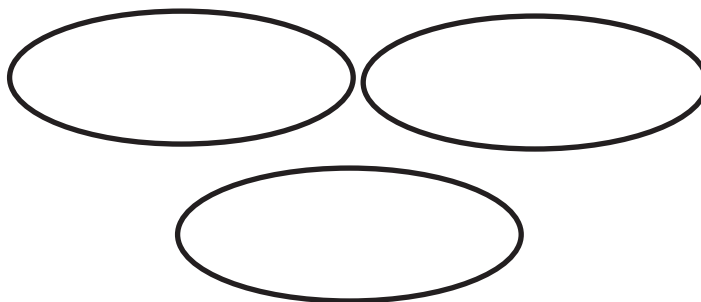1. Circle groups of two shirts.
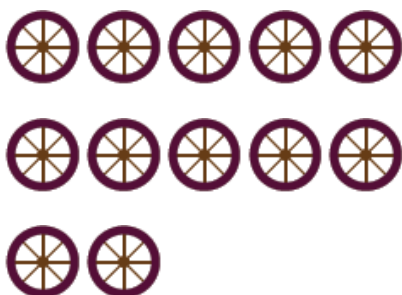

       There are _____ groups of two shirts.

2. Circle groups of three pants.

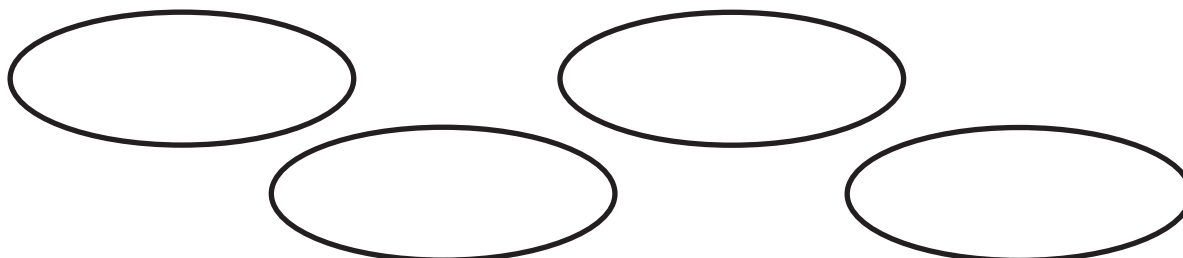   There are _____ groups of three pants.

3. Redraw the 12 wheels into 3 equal groups.
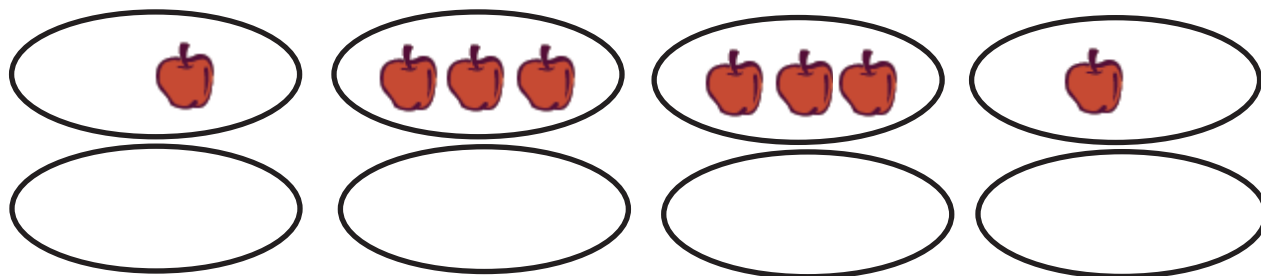

       3 groups of _____ wheels

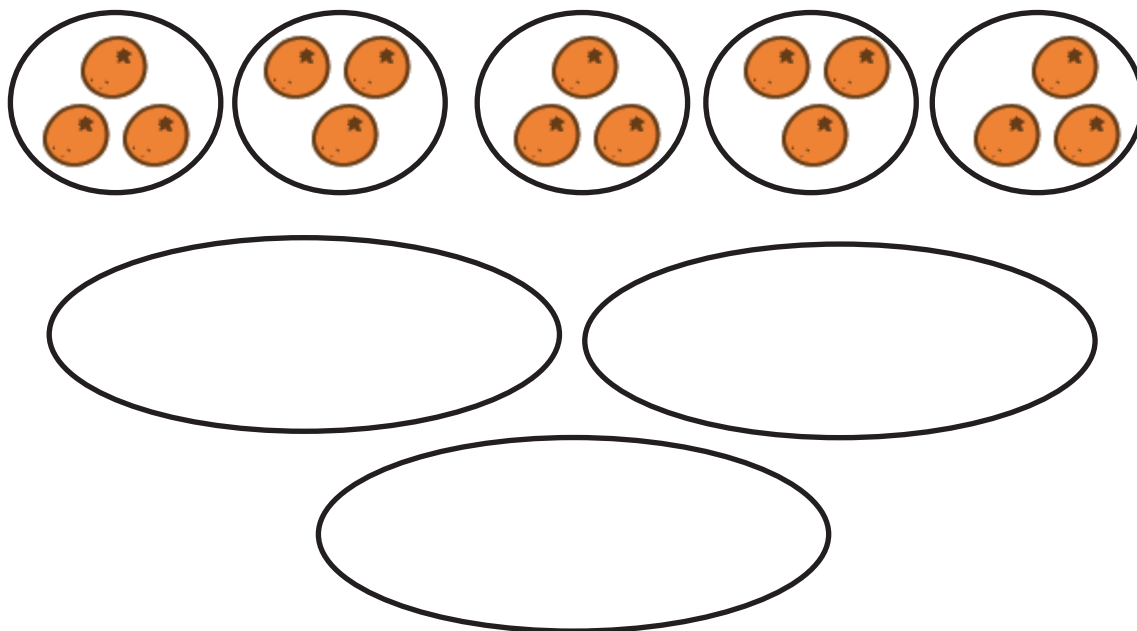4. Redraw the 12 wheels into 4 equal groups.

       4 groups of _____ wheels

5. Redraw the apples to make each of the 4 groups have an equal amount.

4 groups of _____ apples = _____ apples.

6. Redraw the oranges to make 3 equal groups.

3 groups of _____ oranges = _____ oranges.

Name _____   Date _____

1. Write a repeated addition equation to show the number of objects in each group. Then, find the total.

a.

_____ + _____ + _____ = _____

3 groups of _____ = _____

b.

_____ + _____ + _____ + _____ = _____

4 groups of _____ = _____

2. Draw 1 more equal group.

_____ + _____ + _____ + _____ + _____ = _____

5 groups of _____ = _____

Lesson 2:   Use math drawings to represent equal groups, and relate to repeated addition.
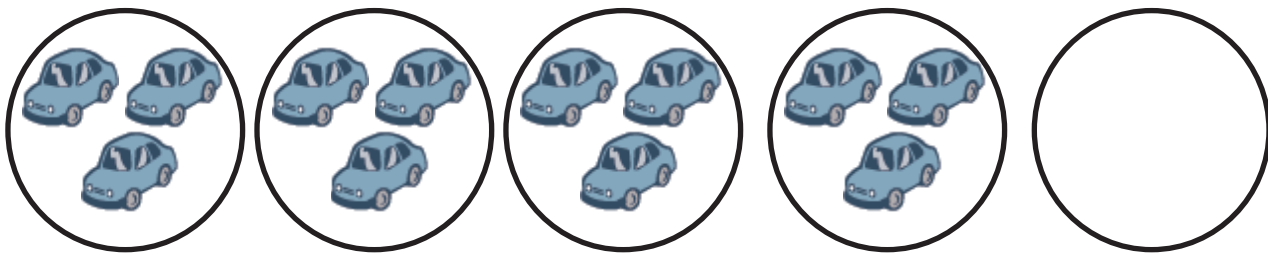
3. Draw 1 more group of four. Then, write a repeated addition equation to match.

_____ + _____ + _____ + _____ = _____

_____ groups of 4 = _____

4. Draw 2 more equal groups. Then, write a repeated addition equation to match.

_____ + _____ + _____ + _____ + _____ = _____

_____ groups of 4 = _____

5. Draw 4 groups of 3 circles. Then, write a repeated addition equation to match.

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Lesson 2: Use math drawings to represent equal groups, and relate to repeated addition.

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Name _____   Date _____

1. Write a repeated addition equation to match the picture. Then, group the addends into pairs to show a more efficient way to add.

a.

_____ + _____ + _____ + _____ = _____

\   /   \   /

_____ + _____ = _____

4 groups of _____ = 2 groups of _____

b.

_____ + _____ + _____ + _____ = _____

_____ + _____ = _____

4 groups of _____ = 2 groups of _____

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Lesson 3: Use math drawings to represent equal groups, and relate to repeated addition.

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c.

_____ + _____ + _____ + _____ = _____

_____ + _____ = _____
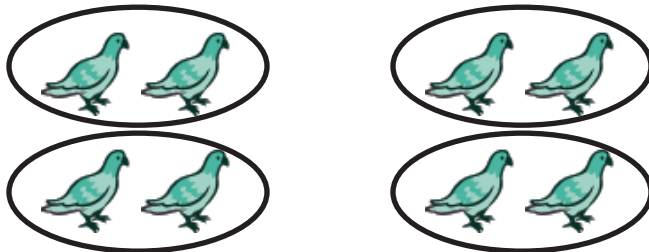
4 groups of _____ = 2 groups of _____

2. Write a repeated addition equation to match the picture. Then, group addends into pairs, and add to find the total.
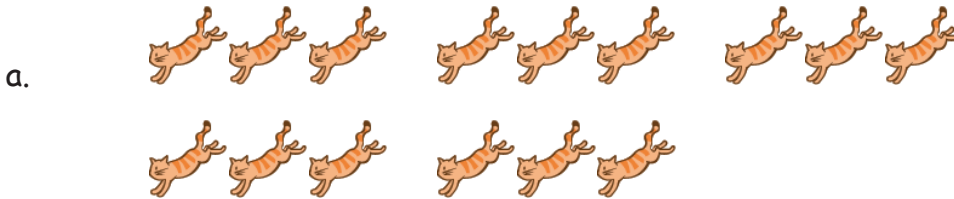
a.

_____ + _____ + _____ + _____ + _____ = _____

_____ + _____ + 3 = _____

_____ + 3 = _____

b.

_____ + _____ + _____ + _____ + _____ = _____

_____ + _____ + 2 = _____

_____ + 2 = _____

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Name _____ Date _____

1. Write a repeated addition equation to find the total of each tape diagram.

a.

_____ + _____ + _____ + _____ = _____

4 groups of 3 = _____

b.

_____ + _____ + _____ + _____ + _____ = _____

5 groups of _____ = _____

c.

4	4	4	4

_____ + _____ + _____ + _____ = _____

4 groups of _____ = _____

d.

2	2	2	2	2	2

_____ + _____ + _____ + _____ + _____ + _____ = _____

_____ groups of _____ = _____

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Lesson 4: Represent equal groups with tape diagrams, and relate to repeated addition.

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2. Draw a tape diagram to find the total.

a. 5 + 5 + 5 + 5 = _____

b. 4 + 4 + 4 + 4 + 4 = _____

c. 4 groups of 2

d. 5 groups of 3

e.

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Lesson 4:   Represent equal groups with tape diagrams, and relate to repeated addition.

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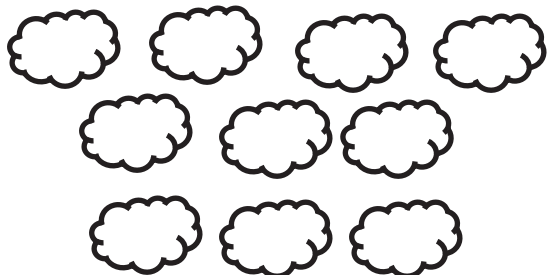
Name _____ Date _____

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

_____

_____

2. Circle groups of four. Redraw the groups of four as rows and then as columns.
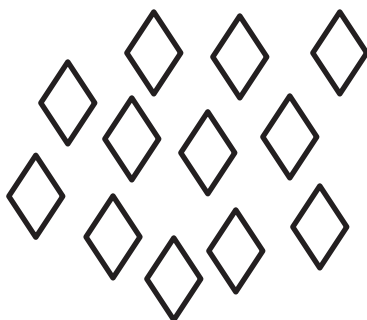
3. Circle groups of four. Redraw the groups of four as rows and then as columns.

Lesson 5:   Compose arrays from rows and columns, and count to find the total using objects.
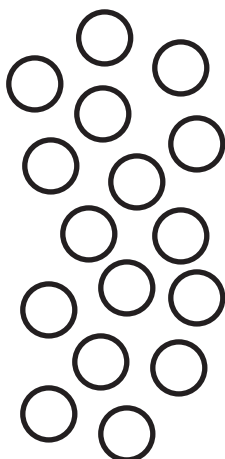
4. Count the objects in the arrays from left to right by rows and by columns. As you count, circle the rows and then the columns.

a.

b.
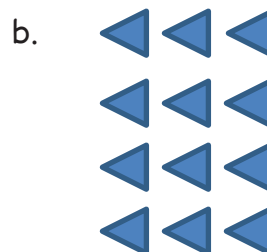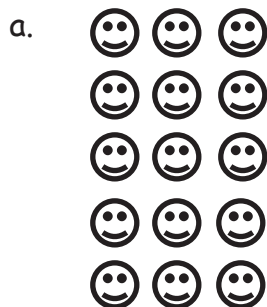
5. Redraw the smiley faces and triangles in Problem 4 as columns of three.

6. Draw an array with 20 triangles.

7. Show a different array with 20 triangles.

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Lesson 5: Compose arrays from rows and columns, and count to find the total using objects.

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Name _____ Date _____

1. Complete each missing part describing each array.

Circle rows.

a.
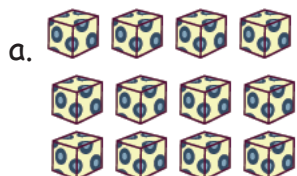
3 rows of _____ = _____

____ + ____ + ____ = _____

Circle columns.

b.
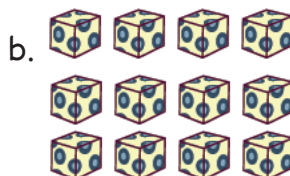
4 columns of _____ = _____

____ + ____ + ____ + ____ = _____

Circle rows.

c.

5 rows of _____ = _____

____ + ____ + ____ + ____ + ____ = ____

Circle columns.

d.

3 columns of _____ = _____

____ + ____ + ____ = ____

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Lesson 6: Decompose arrays into rows and columns, and relate to repeated addition.

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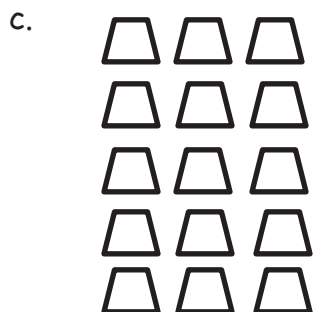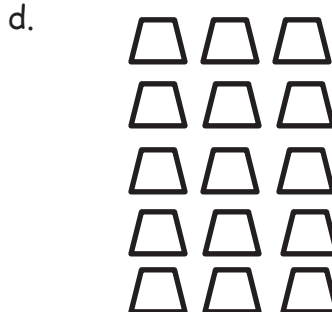
2. Use the array of smiley faces to answer the questions below.

    a. _____ rows of _____ = _____

    b. _____ columns of _____ = _____

    c. _____ + _____ + _____ = _____

    d. Add 1 more row. How many smiley faces are there now? _____

    e. Add 1 more column to the new array you made in 2(d). How many smiley faces
        are there now? _____

3. Use the array of squares to answer the questions below.

    a. _____ + _____ + _____ + _____ = _____

    b. _____ rows of _____ = _____

    c. _____ columns of _____ = _____

    d. Remove 1 row. How many squares are there now? _____

    e. Remove 1 column from the new array you made in 3(d). How many squares are
        there now? _____

EUREKA MATH™ | Lesson 6:   Decompose arrays into rows and columns, and relate to repeated addition.

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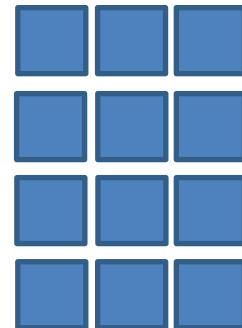
Name _____   Date _____

1.

   a. One row of an array is drawn below. Complete the array with Xs to make 4 rows
      of 5. Draw horizontal lines to separate the rows.

        X X X X X

   b. Draw an array with Xs that has 4 columns of 5. Draw vertical lines to separate
      the columns. Fill in the blanks.

                           _____ + _____ + _____ + _____= _____

                           4 rows of 5 = _____

                           4 columns of 5 = _____

2.
   a. Draw an array of Xs with 3 columns of 4.

   b. Draw an array of Xs with 3 rows of 4. Fill in the blanks below.

                           _____ + _____ + _____ = _____

                           3 columns of 4 = _____
                           3 rows of 4 = _____

Lesson 7:   Represent arrays and distinguish rows and columns using math
                drawings.

In the following problems, separate the rows or columns with horizontal or vertical lines.

3. Draw an array of Xs with 3 rows of 3.

_____ + _____ + _____ = _____

3 rows of 3 = _____

4. Draw an array of Xs with 2 more rows of 3 than the array in Problem 3. Write a repeated addition equation to find the total number of Xs.

5. Draw an array of Xs with 1 less column than the array in Problem 4. Write a repeated addition equation to find the total number of Xs.

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Lesson 7:   Represent arrays and distinguish rows and columns using math drawings.

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Name _____   Date _____

1. Create an array with the squares.

    _____

    _____
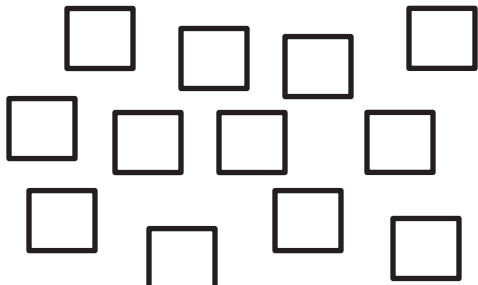
2. Create an array with the squares from the set above.

3. Use the array of squares to answer the questions below.

    a. There are _____ squares in each row.

    b. _____ + _____ + _____ = _____

    c. There are _____ squares in each column.

    d. ____ + ____ + ____ + ____ + ____ = ____

4. Use the array of squares to answer the questions below.
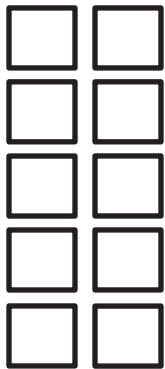
   a. There are _____ squares in one row.

   b. There are _____ squares in one column.

   c. _____ + _____ = _____

   d. 2 columns of _____ = _____ rows of ___ = ___ total.

5.

   a. Draw an array with 15 squares that has 3 squares in each column.

   b. Write a repeated addition equation to match the array.

6.

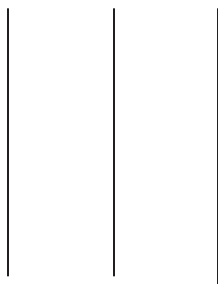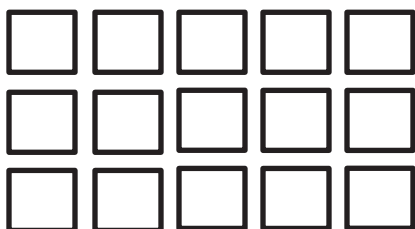   a. Draw an array with 20 squares that has 5 squares in each column.

   b. Write a repeated addition equation to match the array.

   c. Draw a tape diagram to match your repeated addition equation and array.

EUREKA MATH™   **Lesson 8:**   Create arrays using square tiles with gaps.

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Name _____   Date _____

Draw an array for each word problem. Write a repeated addition equation to match each array.

1. Melody stacked her blocks in 3 columns of 4. How many blocks did Melody stack in all?

2. Marty arranged the desks in the classroom into 5 equal rows. There were 5 desks in each row. How many desks were arranged?

3. The baker made 5 trays of muffins. Each tray holds 4 muffins. How many muffins did the baker make?

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Lesson 9:   Solve word problems involving addition of equal groups in rows and columns.

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4. The library books were on the shelf in 4 stacks of 4. How many books were on the shelf?

Draw a tape diagram for each word problem. Write a repeated addition equation to match each tape diagram.

5. Mary placed stickers in columns of 4. She made 5 columns. How many stickers did she use?

6. Jayden put his baseball cards into 5 columns of 3 in his book. How many cards did Jayden put in his book?

Draw a tape diagram and an array. Then, write a repeated addition equation to match.

7. The game William bought came with 3 bags of marbles. Each bag had 3 marbles inside. How many total marbles came with the game?

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Lesson 9:   Solve word problems involving addition of equal groups in rows and columns.

Name _____   Date _____

Cut out the square tiles below, and construct the following arrays with no gaps or overlaps. On the line, write a repeated addition equation to match each construction on the line.

1. a. Construct a rectangle with
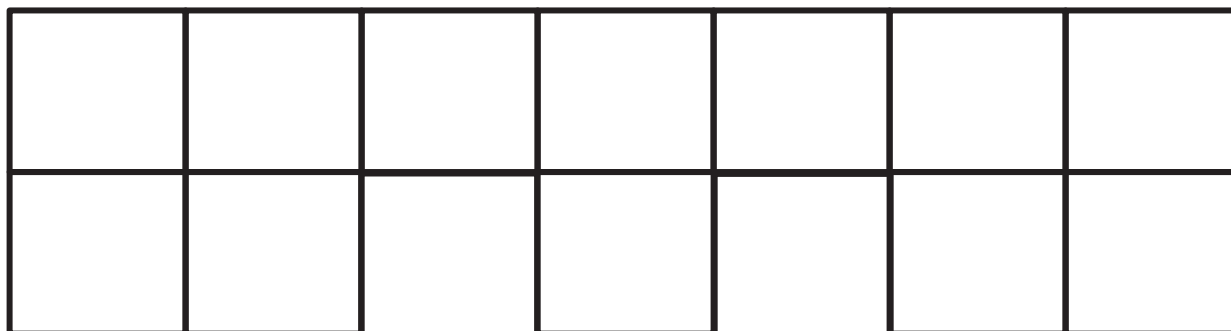   2 rows of 4 tiles.

      b. Construct a rectangle with
        2 columns of 4 tiles.

_____   _____

2. a. Construct a rectangle with
        3 rows of 2 tiles.

      b. Construct a rectangle with
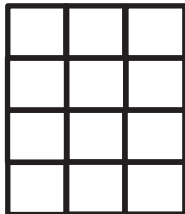   3 columns of 2 tiles.

_____   _____

3. a. Construct a rectangle
        using 10 tiles.

      b. Construct a rectangle
        using 12 tiles.

_____   _____

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Lesson 10:   Use square tiles to compose a rectangle, and relate to the array model.

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4.

a. What shape is the array pictured below? _____

b. In the space below, redraw the above shape with one more column.

c. What shape is the array now? _____

d. Draw a different array of tiles that is the same shape as 4(c).

Lesson 10: Use square tiles to compose a rectangle, and relate to the array model.

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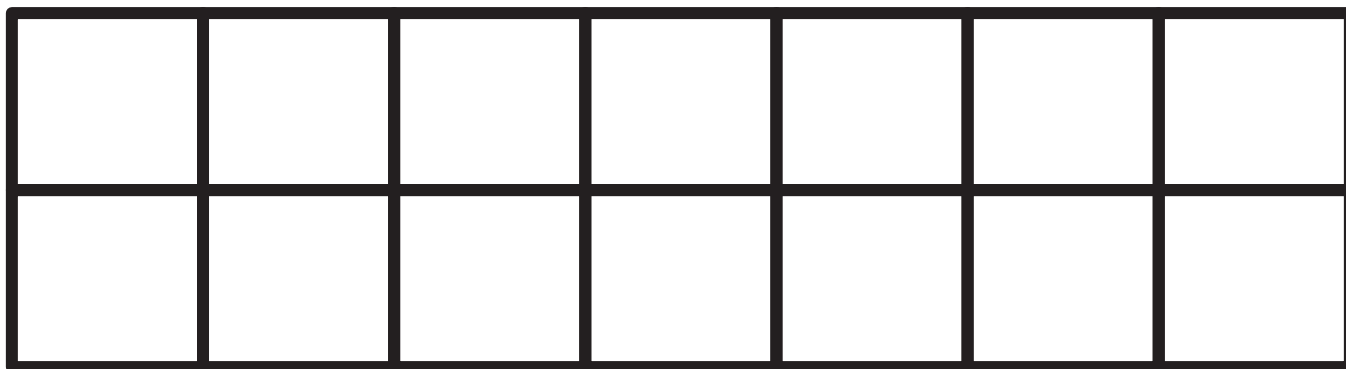
40

Name _____   Date _____

1.

   a. Construct an array with 9 square tiles.

   b. Write a repeated addition equation to match the array.

   _____

2.

   a. Construct an array with 10 squares.

   b. Write a repeated addition equation to match the array.

   _____

   c. Rearrange the 10 squares into a different array.

   d. Write a repeated addition equation to match the new array.

   _____

Cut out each square tile and use to construct the arrays in Problems 1–4.

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Lesson 11:   Use square tiles to compose a rectangle, and relate to the array model.

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3.

    a. Construct an array with 12 squares.

    b. Write a repeated addition equation to match the array.

        _____

    c. Rearrange the 12 squares into a different array.

    d. Write a repeated addition equation to match the new array.

        _____

4. Construct 2 arrays with 14 squares.

    a. 2 rows of _____ = _____

    b. 2 rows of _____ = 7 rows of _____

Lesson 11:   Use square tiles to compose a rectangle, and relate to the array model.

Name _____   Date _____

1. Cut out and trace the square tile to draw an array with 2 rows of 4.

Cut out and trace.

   2 rows of 4 = _____

   _____ + _____ = _____

2. Trace the square tile to make an array with 3 columns of 5.

   3 columns of 5 = _____

   _____ + _____ + _____ = _____

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Lesson 12:   Use math drawings to compose a rectangle with square tiles.

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

a. 4 rows of 5

b. 5 columns of 2

c. 4 columns of 3

Lesson 12: Use math drawings to compose a rectangle with square tiles.

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Name _____   Date _____

Cut out and use your square tiles to complete the steps for each problem.

Problem 1

   Step 1: Construct a rectangle with 5 rows of 2.

   Step 2: Separate 2 rows of 2.

   Step 3: Write a number bond to show the whole and two parts. Write a repeated addition sentence to match each part of your number bond.

Problem 2

   Step 1: Construct a rectangle with 4 columns of 3.

   Step 2: Separate 2 columns of 3.

   Step 3: Write a number bond to show the whole and two parts. Write a repeated addition sentence to match each part of your number bond.

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3. Use 9 square tiles to construct a rectangle with 3 rows.

   a. _____ rows of _____ = _____

   b. Remove 1 row. How many squares are there now? _____

   c. Remove 1 column from the new rectangle you made in 3(b). How many squares are there now? _____

4. Use 14 square tiles to construct a rectangle.

   a. _____ rows of _____ = _____

   b. Remove 1 row. How many squares are there now? _____

   c. Remove 1 column from the new rectangle you made in 4(b). How many squares are there now? _____

Name _____   Date _____

1. Imagine that you have just cut this rectangle into rows.
    a. What do you see? Draw a picture.
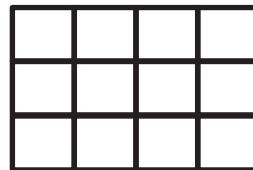
    How many squares are in each row? _____

    b. Imagine that you have just cut this rectangle into columns. What do you see?
        Draw a picture.

    How many squares are in each column? _____

2. Create another rectangle using the same number of squares.

   How many squares are in each row? _____

    How many squares are in each column? _____

Lesson 14:   Use scissors to partition a rectangle into same-size squares, and
              compose arrays with the squares

3. Imagine that you have just cut this rectangle into rows.
   a. What do you see? Draw a picture.
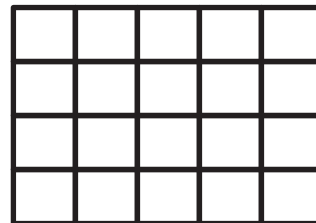
   How many squares are in each row? _____

   b. Imagine that you have just cut this rectangle into columns. What do you see?
   Draw a picture.

   How many squares are in each column? _____

4. Create another rectangle using the same number of squares.

   How many squares are in each row? _____

   How many squares are in each column? _____

Name _____   Date _____

1. Shade in an array with 3 rows of 2.
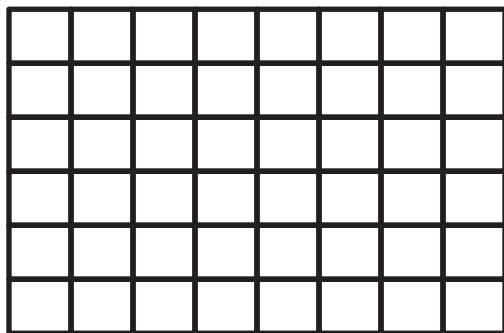
    Write a repeated addition equation for the array.

    _____

2. Shade in an array with 2 rows of 4.
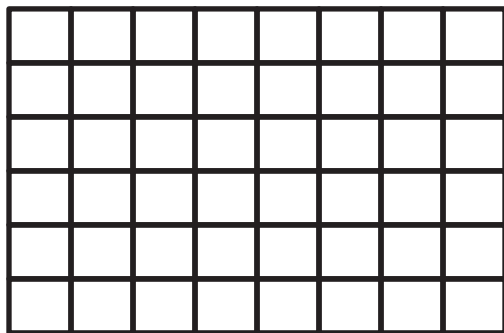
    Write a repeated addition equation for the array.

    _____

3. Shade in an array with 4 columns of 5.

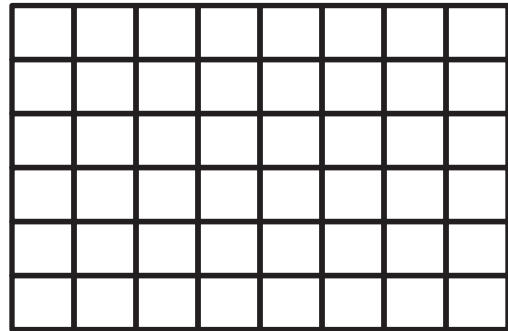   Write a repeated addition equation for the array.

    _____

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Lesson 15:   Use math drawings to partition a rectangle with square tiles, and
relate to repeated addition.

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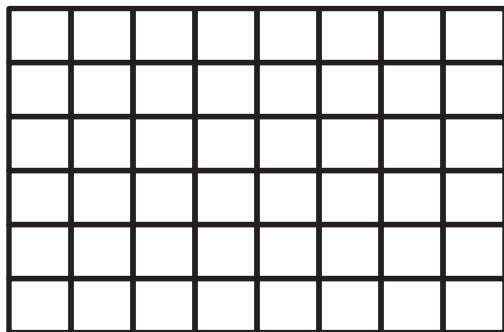
4. Draw one more column of 2 to make a new array.

Write a repeated addition
equation for the new array.

_____

5. Draw one more row of 3, and then one more column to make a new array.
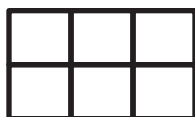
Write a repeated addition
equation for the new array.

_____

6. Draw one more row and then two more columns to make a new array.

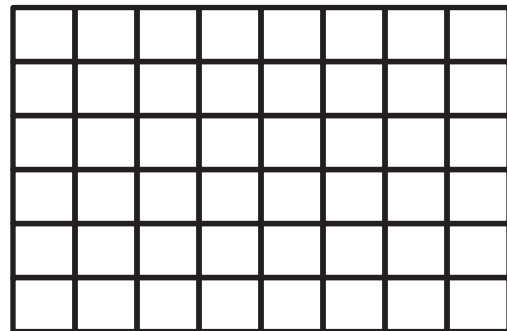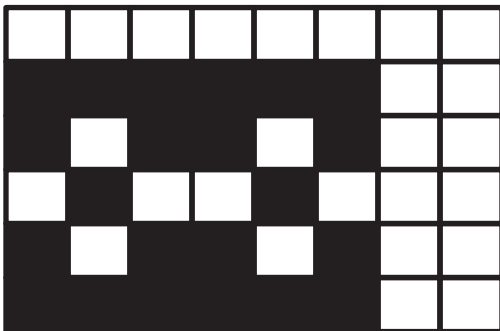Write a repeated addition
equation for the new array.

_____

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Lesson 15:   Use math drawings to partition a rectangle with square tiles, and
relate to repeated addition.

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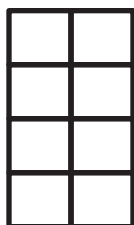
Name _____   Date _____

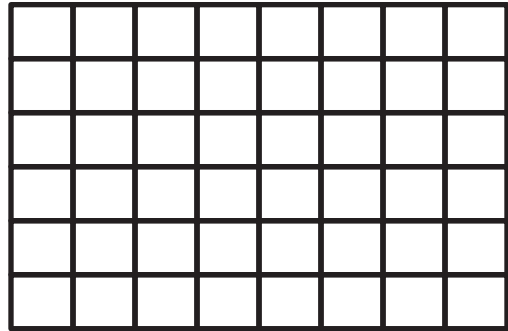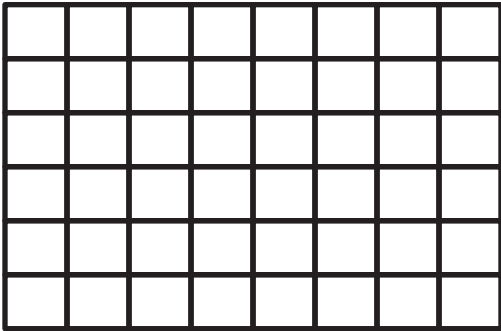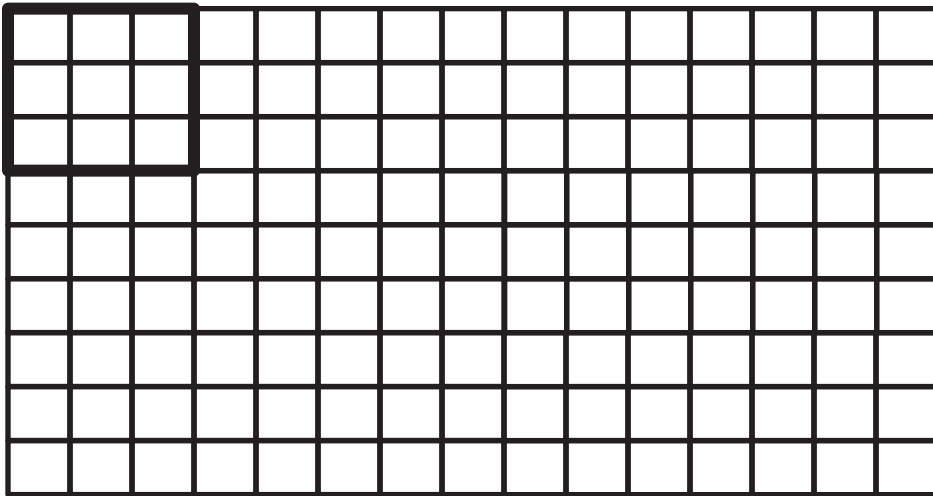1. Shade to create a copy of the design on the empty grid.

   a.
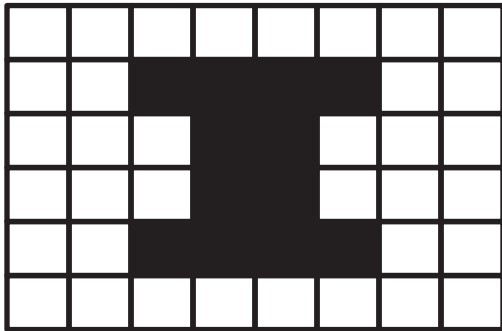
   b.

   c.
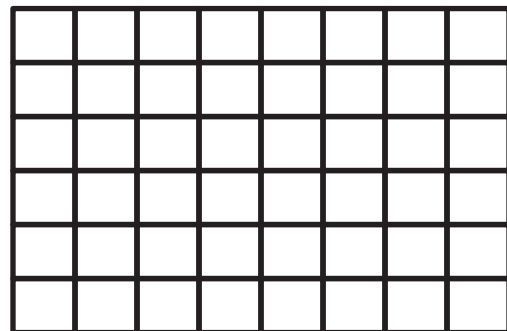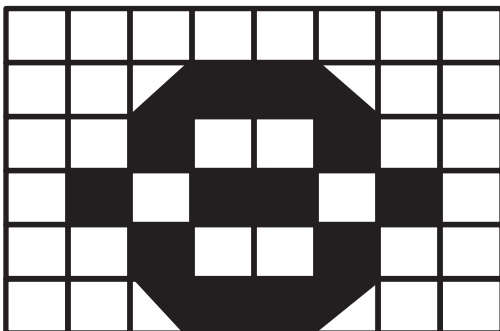
Create two different designs.

2. Use colored pencils to create a design in the bolded square section. Create a tessellation by repeating the design throughout.
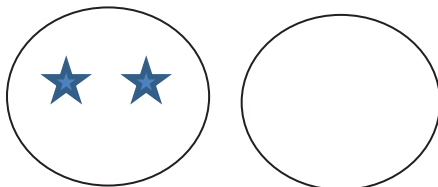
Name _____   Date _____

1. Draw to double the group you see. Complete the sentences, and write an addition equation.
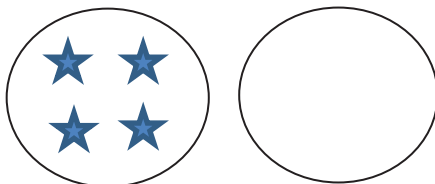
a.

There are _____ stars in each group.

_____ + _____ = _____

b.

There are _____ stars in each group.

_____ + _____ = _____

c.
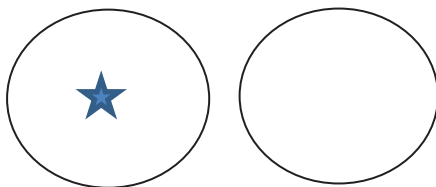
There is _____ star in each group.
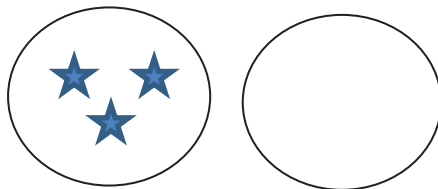
_____ + _____ = _____

d.

There are _____ stars in each group.

_____ + _____ = _____

e.

There are _____ stars in each group.

_____ + _____ = _____

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Lesson 17:   Relate doubles to even numbers, and write number sentences to express the sums.

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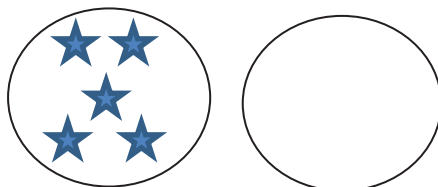
2. Draw an array for each set. Complete the sentences. The first one has been drawn for you.

   a. **2 rows of 6**

   2 rows of 6 = _____

   _____ + _____ = _____

   6 doubled is _____.

   b. **2 rows of 7**

   2 rows of 7 = _____

   _____ + _____ = _____

   7 doubled is _____.

   c. **2 rows of 8**

   _____ rows of _____ = _____

   _____ + 8 = _____

   8 doubled is _____.

   d. **2 rows of 9**

   2 rows of 9 = _____

   _____ + _____ = _____

   9 doubled is _____.

   e. **2 rows of 10**

   _____ rows of _____ = _____

   10 + _____ = _____

   10 doubled is _____.

3. List the totals from Problem 1. _____

   List the totals from Problem 2. _____

   Are the numbers you have listed even or not even? _____

   Explain in what ways the numbers are the same and different.

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Lesson 17:   Relate doubles to even numbers, and write number sentences to express the sums.

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Name _____   Date _____

1. Pair the objects to decide if the number of objects is even.
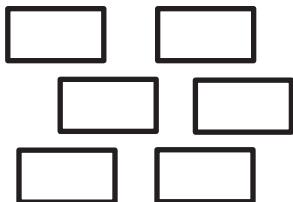
    Even/Not Even

    Even/Not Even

    Even/Not Even

2. Draw to continue the pattern of the pairs in the spaces below until you have drawn zero pairs.

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Lesson 18:   Pair objects and skip-count to relate to even numbers.

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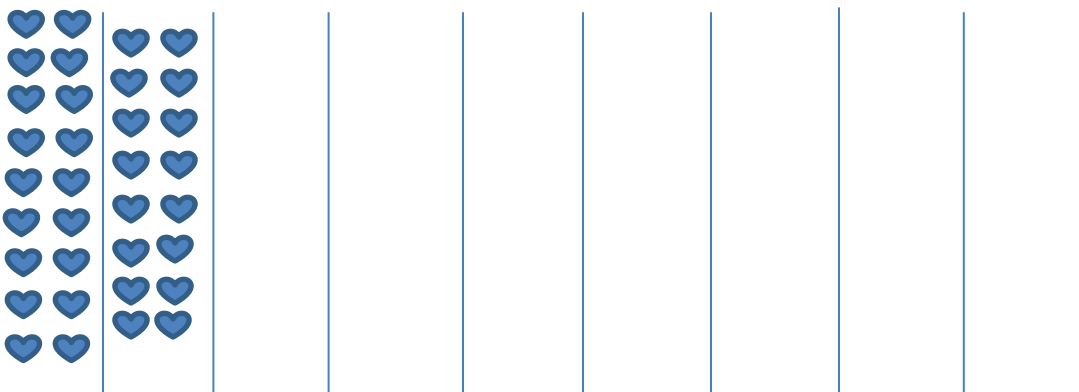
3. Write the number of hearts in each array in Problem 2 in order from greatest to least.

4. Circle the array in Problem 2 that has 2 columns of 6.

5. Box the array in Problem 2 that has 2 columns of 8.

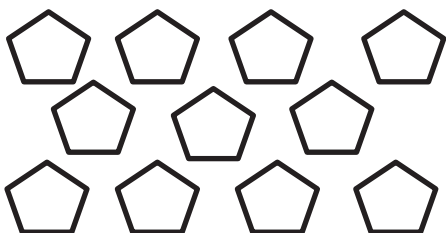6. Redraw the set of stars as columns of two or 2 equal rows.

There are _____ stars.

Is _____ an even number? _____

7. Circle groups of two. Count by twos to see if the number of objects is even.

a. There are _____ twos. There are _____ left over.

b. Count by twos to find the total.

_____, _____, _____, _____, _____, _____, _____, _____

c. This group has an even number of objects: True or False.

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Name _____   Date _____

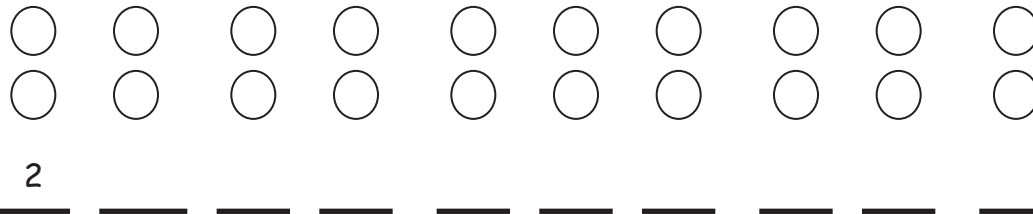1. Skip-count the columns in the array. The first one has been done for you.

○ ○ ○ ○ ○ ○ ○ ○ ○ ○
○ ○ ○ ○ ○ ○ ○ ○ ○ ○

2
___ ___ ___ ___ ___ ___ ___ ___ ___ ___

2. a. Solve.

1 + 1 = _____   6 + 6 = _____

2 + 2 = _____   7 + 7 = _____

3 + 3 = _____   8 + 8 = _____

4 + 4 = _____   9 + 9 = _____

5 + 5 = _____   10 + 10 = _____

b. How is the array in Problem 1 related to the answers in Problem 2(a)?

_____

_____

_____

3. Fill in the missing even numbers on the number path.

18, 20, _____, _____, 26, _____ 30, _____, 34, _____, 38, 40, _____, _____

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4. Fill in the missing odd numbers on the number path.

0, _____, 2, _____, 4, _____, 6, _____, 8, _____, 10, _____, 12, _____, 14

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

a.	b.	c.
4 + 1 = 5 <u>even</u> + 1 = <u>odd</u>	**13 + 1 = 14** _____ + 1 = _____	**20 + 1= 21** _____ + 1 = _____
d.	e.	f.
8 – 1 = 7 _____ - 1 = _____	**16 – 1 = 15** _____ - 1 = _____	**30 – 1 = 29** _____ - 1 = _____
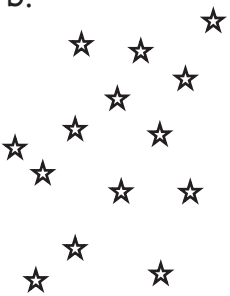
6. Are the **bold** numbers even or odd? Circle the answer, and explain how you know.

a. **21** even/odd	Explanation:
b. **34** even/odd	Explanation:

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Lesson 19: Investigate the pattern of even numbers: 0, 2, 4, 6, and 8 in the ones place, and relate to odd numbers.

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Name _____   Date _____

1. Use the objects to create an array with 2 rows.

a.	Array with 2 rows	Redraw your picture with 1 *less* star.
	There are an even/odd (circle one) number of stars.	There are an even/odd (circle one) number of stars.

b.	Array with 2 rows	Redraw your picture with 1 *more* star.
	There are an even/odd (circle one) number of stars.	There are an even/odd (circle one) number of stars.

c.	Array with 2 rows	Redraw your picture with 1 *less* star.
	There are an even/odd (circle one) number of stars.	There are an even/odd (circle one) number of stars.

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Lesson 20:   Use rectangular arrays to investigate odd and even numbers.

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2. Solve. Tell if each number is odd (O) or even (E) on the line below.

a. 6   +   6   = _____

_____ + _____ = _____

e. 7   +   8   = _____

_____ + _____ = _____

b. 8   +   13   = _____

_____ + _____ = _____

f. 9   +   11   = _____

_____ + _____ = _____

c. 9   +   15   = _____

_____ + _____ = _____

g. 7   +   14   = _____

_____ + _____ = _____

d. 17   +   8   = _____

_____ + _____ = _____

h. 9   +   9   = _____

_____ + _____ = _____

3. Write three number sentence examples to prove that each statement is correct.

Even + Even = Even	Even + Odd = Odd	Odd + Odd = Even

Lesson 20:   Use rectangular arrays to investigate odd and even numbers.

4. Write two examples for each case; next to your answer, write if your answers are even or odd. The first one has been done for you.

Add an even number to an even number.

   32 + 18 = 40 even   _____

Add an odd number to an even number.

   _____   _____

Add an odd number to an odd number.

   _____   _____

Lesson 20:   Use rectangular arrays to investigate odd and even numbers.

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