Name ________________________________ Date ________________

1. Circle groups of two apples.
   
   There are _____ groups of two apples.

2. Circle groups of three balls.
   
   There are _____ groups of three balls.

3. Redraw the 12 oranges into 4 equal groups.
   
   4 groups of _____ oranges

4. Redraw the 12 oranges into 3 equal groups.
   
   3 groups of _____ oranges
5. Redraw the flowers to make each of the 3 groups have an equal number.

3 groups of ______ flowers = _____ flowers.

6. Redraw the lemons to make 2 equal size groups.

2 groups of _____ lemons = _____ lemons.
Lesson 1: Use manipulatives to create equal groups.

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 group of four. Then, write a repeated addition equation to match.

____ + ____ + ____ + ____ + ____ = ____  

5 groups of ____ = ____
3. Draw 1 more group of three. Then, write a repeated addition equation to match.

\[ \square + \square + \square + \square = \square \]

\[ \text{____ groups of 3 = _____} \]

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

\[ \heartsuit + \heartsuit + \heartsuit + \heartsuit + \heartsuit = \square \]

\[ \text{____ groups of 2 = _____} \]

5. Draw 3 groups of 5 stars. Then, write a repeated addition equation to match.
Lesson 2 Homework

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 ____ = ____
3. Draw 1 more group of four. Then, write a repeated addition equation to match.

\[
\begin{align*}
\text{\_\_\_\_} & + \text{\_\_\_\_} & + \text{\_\_\_\_} & + \text{\_\_\_\_} = \text{\_\_\_}\n
\text{\_\_\_\_} \text{ groups of } 4 & = \text{\_\_\_}\n\end{align*}
\]

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

\[
\begin{align*}
\text{\_\_\_\_} & + \text{\_\_\_\_} & + \text{\_\_\_\_} & + \text{\_\_\_\_} & + \text{\_\_\_\_} = \text{\_\_\_}\n
\text{\_\_\_\_} \text{ groups of } 4 & = \text{\_\_\_}\n\end{align*}
\]

5. Draw 4 groups of 3 circles. Then, write a repeated addition equation to match.
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. 
   
   \[
   \begin{array}{c}
   \text{_____ + _____ + _____ + _____ = _____} \\
   \text{_____ + _____ = _____} \\
   \text{4 groups of _____ = 2 groups of _____}
   \end{array}
   \]

   b. 
   
   \[
   \begin{array}{c}
   \text{_____ + _____ + _____ + _____ = _____} \\
   \text{ _____ + _____ = _____} \\
   \text{4 groups of _____ = 2 groups of _____}
   \end{array}
   \]
Lesson 3 Problem Set

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

1. Fill in the missing numbers on the following equal groups and repeated addition equations:

   c. 
   
   
   
   _____ + _____ + _____ + _____ + _____ + _____ + _____ = ____  
   
   + + + + + + + = ____
   
   8 groups of ____ = 4 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. 
   
   
   
   + + + + + = ____
   
   + + + + + + + + + + = ____
   
   + 3 = ____
   
   + 3 = ____
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.

   \[ \underline{\text{___}} + \underline{\text{___}} + \underline{\text{___}} + \underline{\text{___}} = \underline{\text{___}} \]

   \[ \underline{\text{\phantom{___}} / \underline{\text{___}} / \underline{\text{___}} / \underline{\text{___}} } \]

   \[ \underline{\text{___}} + \underline{\text{___}} = \underline{\text{___}} \]

   4 groups of \underline{\text{___}} = 2 groups of \underline{\text{___}}

   b.

   \[ \underline{\text{___}} + \underline{\text{___}} + \underline{\text{___}} + \underline{\text{___}} = \underline{\text{___}} \]

   \[ \underline{\text{___}} + \underline{\text{___}} = \underline{\text{___}} \]

   4 groups of \underline{\text{___}} = 2 groups of \underline{\text{___}}
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. 

\[ \_\_\_ + \_\_\_ + \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_ \]
\[ \_\_\_ + \_\_\_ + 2 = \_\_\_ \]
\[ \_\_\_ + 2 = \_\_\_ \]
Name _______________________________ Date _______________

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

   a. 
      
      
      
      
      
      _______ + _______ + _______ + _______ = _______

      4 groups of 2 = ______

   b. 
      
      
      
      
      
      _______ + _______ + _______ + _______ + _______ = _______

      5 groups of ______ = ______

   c. 
      
      
      
      _______ + _______ + _______ = _______

      3 groups of ______ = ______

   d. 
      
      
      
      _______ + _______ + _______ + _______ + _______ + _______ = _______

      ______ groups of ______ = ______
2. Draw a tape diagram to find the total.
   a. $3 + 3 + 3 + 3 = \underline{\hspace{1cm}}$
   b. $4 + 4 + 4 = \underline{\hspace{1cm}}$
   c. 5 groups of 2
   d. 4 groups of 4
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 groups of  = 

   d. 

      + + + + + + =  

      groups of  = 

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. [Diagram of 10 cars]
1. Circle groups of four. Then, draw the triangles into 2 equal rows.

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

3. Circle groups of three. Redraw the groups of three as rows and then as columns.
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. [Array of circles]
   b. [Array of stars]

5. Redraw the circles and stars in Problem 4 as columns of two.

6. Draw an array with 15 triangles.

7. Show a different array with 15 triangles.
Lesson 5 Homework

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.
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.
Lesson 6 Problem Set

Name ___________________________ Date _______________

1. Complete each missing part describing each array.
   Circle rows. Circle columns.

   a.  
      
      
      
      
      
      5 rows of _____ = _____
      ___ + ___ + ___ + ___ + ___ = ___

   b.  
      
      
      
      
      
      3 columns of _____ = _____
      ___ + ___ + ___ = ___

   c.  
      
      
      
      
      
      4 rows of _____ = _____
      ___ + ___ + ___ + ___ = ___

   d.  
      
      
      
      
      
      5 columns of _____ = _____
      ___ + ___ + ___ + ___ + ___ = ___
Lesson 6 Problem Set

2. Use the array of triangles to answer the questions below.
   a. _____ rows of _____ = 12
   b. _____ columns of _____ = 12
   c. _____ + _____ + _____ = ______
   d. Add 1 more row. How many triangles are there now? _____
   e. Add 1 more column to the new array you made in 2(d). How many triangles 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? _____
1. Complete each missing part describing each array.

Circle rows.

a. 3 rows of _____ = _____
   ____ + ____ + ____ = ____

b. 4 columns of _____ = _____
   ____ + ____ + ____ + ____ = ____

Circle rows.

c. 5 rows of _____ = _____
   ____ + ____ + ____ + ____ + ____ = ____

d. 3 columns of _____ = _____
   ____ + ____ + ____ = ____
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? _____
Lesson 7 Problem Set

Name ___________________________________________ Date ________________

1. a. One row of an array is drawn below. Complete the array with X’s to make 3 rows of 4. Draw horizontal lines to separate the rows.

\[ \text{X X X X} \]

b. Draw an array with X’s that has 3 columns of 4. Draw vertical lines to separate the columns. Fill in the blanks.

\[ ____ + ____ + ____ = _____ \]

3 rows of 4 = _____

3 columns of 4 = _____

2. a. Draw an array of X’s with 5 columns of three.

b. Draw an array of X’s with 5 rows of three. Fill in the blanks below.

\[ ____ + ____ + ____ + _____ + _____ = _____ \]

5 columns of three = _____

5 rows of three = _____
In the following problems, separate the rows or columns with horizontal or vertical lines.

3. Draw an array of X’s with 4 rows of 3.

4. rows of 3 = ______

4. Draw an array of X’s with 1 more row of 3 than the array in Problem 3. Write a repeated addition equation to find the total number of X’s.

5. Draw an array of X’s with 1 less column of 5 than the array in Problem 4. Write a repeated addition equation to find the total number of X’s.
1. a. One row of an array is drawn below. Complete the array with X’s to make 4 rows of 5. Draw horizontal lines to separate the rows.

   X X X X X

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

   _____ + _____ + _____ + _____ = _____

   4 rows of 5 = _____

   6 columns of 5 = _____

2. a. Draw an array of X’s with 3 columns of 4.

b. Draw an array of X’s with 3 rows of 4. Fill in the blanks below.

   _____ + _____ + _____ = _____

   3 columns of 4 = _____

   3 rows of 4 = _____
In the following problems, separate the rows or columns with horizontal or vertical lines.

3. Draw an array of X’s with 3 rows of 3.

    ____ + ____ + ____ = ____

    3 rows of 3 = ____

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

5. Draw an array of X’s with 1 less column than the array in Problem 4. Write a repeated addition equation to find the total number of X’s.
Lesson 8 Problem Set

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. 3 columns of _____ = _____ rows of _____ = _____ total
```

5. a. Draw an array with 8 squares that has 2 squares in each column.

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

6. a. Draw an array with 20 squares that has 4 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.
Lesson 8 Homework

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.
Lesson 9 Problem Set

Name ___________________________ Date ____________

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

1. Jason collected some rocks. He put them in 5 rows with 3 stones in each row. How many stones did Jason have altogether?

2. Abby made 3 rows of 4 chairs. How many chairs did Abby use?

3. There are 3 wires and 5 birds sitting on each of them. How many birds in all are on the wires?

4. Henry’s house has 2 floors. There are 4 windows on each floor that face the street. How many windows face the street?
Draw a tape diagram for each word problem. Write a repeated addition equation to match each tape diagram.

5. Each of Maria’s 4 friends has 5 markers. How many markers do Maria’s friends have in all?

6. Maria also has 5 markers. How many markers do Maria and her friends have in all?

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

7. In a card game, 3 players get 4 cards each. One more player joins the game. How many total cards should be dealt now?
Lesson 9: Solve word problems involving addition of equal groups in rows and columns.

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?
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?


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?
Lesson 10 Problem Set

Name ___________________________________________  Date ______________

Use your square tiles to construct the following rectangles with no gaps or overlaps. Write a repeated addition equation to match each construction.

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

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

2. a. Construct a rectangle with 5 rows of 2 tiles.
   _____________________________________________

   b. Construct a rectangle with 5 columns of 2 tiles.
   _____________________________________________
3. a. Construct a rectangle of 9 tiles that has equal rows and columns.

______________________________

b. Construct a rectangle of 16 tiles that has equal rows and columns.

______________________________

4. a. What shape is the array pictured below? ____________________________

b. Redraw the above shape with one column removed in the space below.

c. What shape is the array now? ____________________________
Lesson 10 Homework

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.

   ________________________________
4. a. What shape is the array pictured below? ________________________________

[Grid Image]

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).
Use your square tiles to construct the following arrays with no gaps or overlaps. Write a repeated addition equation to match each construction.

1. a. Place 8 square tiles in a row.

   b. Construct an array with the 8 square tiles.

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

      ____________________________

2. a. Construct an array with 12 squares.

   a. 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.

      ____________________________
Lesson 11 Problem Set

3. a. Construct an array with 20 squares.

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

   __________________________

   c. Rearrange the 20 squares into a different array.

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

   __________________________

4. Construct 2 arrays with 6 squares.
   a. 2 rows of _____ = ______

   b. 3 rows of _____ = 2 rows of ______

5. Construct 2 arrays with 10 squares.
   a. 2 rows of _____ = ______

   b. 5 rows of _____ = 2 rows of ______
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 square tiles.
   b. Write a repeated addition equation to match the array.
   c. Rearrange the 10 square tiles into a different array.
   d. Write a repeated addition equation to match the new array.

Cut out each square tile. Use the tiles to construct the arrays in Problems 1-4.
3. a. Construct an array with 12 square tiles.
   b. Write a repeated addition equation to match the array.

   _________________

   c. Rearrange the 12 square tiles into a different array.
   d. Write a repeated addition equation to match the new array.

   _________________

4. Construct 2 arrays with 14 square tiles.
   a. 2 rows of _____ = _____

   b. 2 rows of _____ = 7 rows of _____
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 = ______

_____ + _____ + _____ + _____ = _____
Lesson 12 Problem Set

3. Complete the following arrays without gaps or overlaps. The first tile has been drawn for you.
   
a. 3 rows of 4
   
   [Diagram of 3 rows of 4 tiles drawn]

   b. 5 columns of 3
   
   [Diagram of 5 columns of 3 tiles drawn]

   c. 5 columns of 4
   
   [Diagram of 5 columns of 4 tiles drawn]
Name ____________________________ Date ________________

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

   2 rows of 4 = ______
   ______ + ______ = ______

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

   3 columns of 5 = ______
   ______ + ______ + ______ = ______
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 13 Problem Set

Name ____________________________ Date ____________

Use your square tiles to complete the steps for each problem.

Problem 1

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. Then, write a repeated addition sentence to match each part of the number bond.

Problem 2

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 the number bond.

Problem 3

Step 1: Construct a rectangle with 5 columns of 3.
Step 2: Separate 3 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 the number bond.
4. Use 12 square tiles to construct a rectangle with 3 rows.
   a. _____ rows of _____ = 12
   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? _____

5. Use 20 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 5(b). How many squares are there now? _____

6. Use 16 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 6(b). How many squares are there now? _____
Lesson 13 Homework

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.
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? _____
Lesson 14 Problem Set

Name _____________________________   Date ________________

Cut out Rectangles A, B, and C. Then, cut according to directions. Answer each of the following using Rectangles A, B, and C.1

1. Cut out each row of Rectangle A.
   a. Rectangle A has _____ rows.
   b. Each row has ______ squares.
   c. _____ rows of _____ = _____
   d. Rectangle A has ______ squares.

2. Cut out each column of Rectangle B.
   a. Rectangle B has _____ columns.
   b. Each column has ______ squares.
   c. _____ columns of _____ = _____
   d. Rectangle B has ______ squares.

1Note: This Problem Set is used with a template of three identical 2 by 4 arrays. These arrays are labeled as Rectangles A, B, and C.
3. Cut out each square from both Rectangles A and B.
   a. Construct a new rectangle using all 16 squares.
   
   b. My rectangle has ______ rows of ______.
   
   c. My rectangle also has _____ columns of ______.
   
   d. Write two repeated addition number sentences to match your rectangle.

4. Construct a new array using the 24 squares from Rectangles A, B, and C.
   a. My rectangle has ______ rows of ______.
   
   b. My rectangle also has _____ columns of ______.
   
   c. Write two repeated addition number sentences to match your rectangle.

Extension: Construct another array using the squares from Rectangles A, B, and C.
   a. My rectangle has ______ rows of ______.
   
   b. My rectangle also has _____ columns of ______.
   
   c. Write two repeated addition number sentences to match your rectangle.
Lesson 14 Homework

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? _______
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? __________
Lesson 14: Use scissors to partition a rectangle into same-size squares, and compose arrays with the squares.
Lesson 15 Problem Set

Name ____________________________ Date ______________

1. Shade in an array with 2 rows of 3.

Write a repeated addition equation for the array.

2. Shade in an array with 4 rows of 3.

Write a repeated addition equation for the array.


Write a repeated addition equation for the array.
Lesson 15 Problem Set

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 4 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.
Lesson 15 Homework

Name ________________________________  Date __________________

1. Shade in an array with 3 rows of 2.

Write a repeated addition equation for the array.


Write a repeated addition equation for the array.


Write a repeated addition equation for the array.
Lesson 15 Homework

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

\[
\begin{array}{ccc}
& & \\
& & \\
& & \\
\end{array}
\]

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.

\[
\begin{array}{ccc}
& & \\
& & \\
& & \\
\end{array}
\]

Write a repeated addition equation for the new array.

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

\[
\begin{array}{cccc}
& & & \\
& & & \\
& & & \\
\end{array}
\]

Write a repeated addition equation for the new array.
Name ___________________________ Date ______________

Use your square tiles and grid paper to complete the following problems.

Problem 1

a. Cut out 10 square tiles.
b. Cut one of your square tiles in half diagonally.
c. Create a design.
d. Shade in your design on grid paper.

Problem 2

a. Use 16 square tiles.
b. Cut two of your square tiles in half diagonally.
c. Create a design.
d. Shade in your design on grid paper.
e. Share your second design with your partner.
f. Check each other’s copy to be sure it matches the tile design.

Problem 3

a. Create a 3 by 3 design with your partner in the corner of a new piece of grid paper.
b. With your partner, copy that design to fill the entire paper.
Lesson 16 Homework

Name _______________________________ Date ________________

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

   a. 

   b. 

   c. 

Lesson 16: Use grid paper to create designs to develop spatial structuring.
2. Create two different designs.

3. Use colored pencils to create a design in the bolded square section. Create a tessellation by repeating the design throughout.
Lesson 16: Use grid paper to create designs to develop spatial structuring.
Lesson 17: Relate doubles to even numbers, and write number sentences to express the sums.

Name ___________________________ Date ______________

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

   a. [Cloud images] There is ______ cloud in each group.
      ________ + ________ = ________

   b. [Cloud images] There are ______ clouds in each group.
      ________ + ________ = ________

   c. [Cloud images] There are ______ clouds in each group.
      ________ + ________ = ________

   d. [Cloud images] There are ______ clouds in each group.
      ________ + ________ = ________

   e. [Cloud images] There are ______ clouds in each group.
      ________ + ________ = ________
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**

```
   ●●●●●●●●
   ●●●●●●●●
```

2 rows of 8 = ______

_____ + _____ = ______

8 doubled is ______.

d. **2 rows of 9**

```
   ●●●●●●●●●
   ●●●●●●●●●
```

2 rows of 9 = ______

_____ + _____ = ______

9 doubled is ______.

e. **2 rows of 10**

```
   ●●●●●●●●●●
   ●●●●●●●●●●
```

2 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.
1. Draw to double the group you see. Complete the sentences, and write an addition equation.

   a. ![Diagram with two stars]  
      There are _____ stars in each group.  
      _________ + _________ = _________

   b. ![Diagram with four stars]  
      There are _____ stars in each group.  
      _________ + _________ = _________

   c. ![Diagram with one star]  
      There is _____ star in each group.  
      _________ + _________ = _________

   d. ![Diagram with three stars]  
      There are _____ stars in each group.  
      _________ + _________ = _________

   e. ![Diagram with five stars]  
      There are _____ stars in each group.  
      _________ + _________ = _________
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.
Name ____________________________ Date ___________

1. Pair the objects to decide if the number of objects is even.

   ![Heart Pairs]
   Even/Not Even

   ![Star Pairs]
   Even/Not Even

   ![Smiley Face Pairs]
   Even/Not Even

2. Draw to continue the pattern of the pairs in the space below until you have drawn 10 pairs.

   ![Continued Pairs]
3. Write the number of dots in each array in Problem 2 in order from least to greatest.

4. Circle the array in Problem 2 that has 2 columns of 7.

5. Box the array in Problem 2 that has 2 columns of 9.

6. Redraw the following sets of dots as columns of two or 2 equal rows.

   a. ![Set of dots]
   b. ![Set of dots]

   There are _________ dots.  There are _________ dots.
   Is ____ an even number? ________  Is ____ an even number? ________

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

   ![Group of dots]

   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
1. Pair the objects to decide if the number of objects is even.

Even/Not Even

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

Even/Not Even
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.

   ![Stars](image)

   There are ________ stars.

   Is ____ an even number? ________

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

   ![Groups of stars](image)
   
   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.
Lesson 19 Problem Set

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

   0  0  0  0  0  0  0  0  0  0
   0  0  0  0  0  0  0  0  0  0
   2  ___  ___  ___  ___  ___  ___  ___  ___  ___

2. a. Solve.

   1 + 1 = ______
   2 + 2 = ______
   3 + 3 = ______
   4 + 4 = ______
   5 + 5 = ______
   6 + 6 = ______
   7 + 7 = ______
   8 + 8 = ______
   9 + 9 = ______
   10 + 10 = ______

   b. Explain the connection between the array in Problem 1 and the answers in Problem 2(a).

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

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

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

20, 22, 24, ____, 28, 30, ____, ____, 36, ____, 40, ____, ____ 46, ____ __

b. Fill in the odd numbers on the number path.

0, ____, 2, ____, 4, ____, 6, ____, 8 ____, 10, ____, 12, ____, 14, ____, 16, ____, 18, ____, 20, ____

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

<table>
<thead>
<tr>
<th>a.</th>
<th>b.</th>
<th>c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 + 1 = 7</td>
<td>24 + 1 = 25</td>
<td>30 + 1 = 31</td>
</tr>
<tr>
<td>even + 1 = odd</td>
<td>____ + 1 = ____</td>
<td>____ + 1 = ____</td>
</tr>
<tr>
<td>d.</td>
<td>e.</td>
<td>f.</td>
</tr>
<tr>
<td>6 - 1 = 5</td>
<td>24 - 1 = 23</td>
<td>30 - 1 = 29</td>
</tr>
<tr>
<td>____ - 1 = ____</td>
<td>____ - 1 = ____</td>
<td>____ - 1 = ____</td>
</tr>
</tbody>
</table>

5. Are the bold numbers even or odd? Circle the answer, and explain how you know.

<table>
<thead>
<tr>
<th>a.</th>
<th>Explanation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>even/odd</td>
</tr>
<tr>
<td>b.</td>
<td>Explanation:</td>
</tr>
<tr>
<td>39</td>
<td>even/odd</td>
</tr>
<tr>
<td>c.</td>
<td>Explanation:</td>
</tr>
<tr>
<td>45</td>
<td>even/odd</td>
</tr>
<tr>
<td>d.</td>
<td>Explanation:</td>
</tr>
<tr>
<td>50</td>
<td>even/odd</td>
</tr>
</tbody>
</table>
Lesson 19 Homework

Name ___________________________________________ Date ____________

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

<p>| | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. a. Solve.

1 + 1 = _____
2 + 2 = _____
3 + 3 = _____
4 + 4 = _____
5 + 5 = _____
6 + 6 = _____
7 + 7 = _____
8 + 8 = _____
9 + 9 = _____
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, _____, _____
Lesson 19: Investigate the pattern of even numbers: 0, 2, 4, 6, and 8 in the ones place, and relate to odd numbers.

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.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>4 + 1 = 5</td>
<td>even + 1 = odd</td>
</tr>
<tr>
<td></td>
<td>13 + 1 = 14</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>8 - 1 = 7</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>20 + 1 = 21</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>16 - 1 = 15</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>30 - 1 = 29</td>
<td></td>
</tr>
</tbody>
</table>

6. Are the bold numbers even or odd? Circle the answer, and explain how you know.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>even/odd</td>
</tr>
<tr>
<td>b.</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>even/odd</td>
</tr>
</tbody>
</table>
Lesson 20 Problem Set

Name ___________________________ Date ________________

1. Use the objects to create an array.

<table>
<thead>
<tr>
<th>Array</th>
<th>Redraw your picture with 1 (\text{less}) circle.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Array" /></td>
<td>There are an even/odd (circle one) number of circles.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Array" /></td>
<td>There are an even/odd (circle one) number of circles.</td>
</tr>
<tr>
<td><img src="image3.png" alt="Array" /></td>
<td>Redraw your picture with 1 (\text{more}) circle.</td>
</tr>
<tr>
<td><img src="image4.png" alt="Array" /></td>
<td>There are an even/odd (circle one) number of circles.</td>
</tr>
<tr>
<td><img src="image5.png" alt="Array" /></td>
<td>There are an even/odd (circle one) number of circles.</td>
</tr>
<tr>
<td><img src="image6.png" alt="Array" /></td>
<td>Redraw your picture with 1 (\text{less}) circle.</td>
</tr>
<tr>
<td><img src="image7.png" alt="Array" /></td>
<td>There are an even/odd (circle one) number of circles.</td>
</tr>
</tbody>
</table>
2. Solve. Tell if each number is odd (O) or even (E). The first one has been done for you.

   a. 6 + 4 = 10
       E + E = E
   b. 17 + 2 =
       + =
   c. 11 + 13 =
       + =
   d. 14 + 8 =
       + =
   e. 3 + 9 =
       + =
   f. 5 + 14 =
       + =

3. Write two examples for each case. Write if your answers are even or odd. The first one has been started for you.

   a. Add an even number to an even number.
      32 + 8 = 40 even
      __________________________
   b. Add an odd number to an even number.
      __________________________
   c. Add an odd number to an odd number.
      __________________________
Lesson 20 Homework

Name ________________________________  Date __________

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

<table>
<thead>
<tr>
<th></th>
<th>Array with 2 rows</th>
<th>Redraw your picture with 1 less star.</th>
<th>There are an even/odd (circle one) number of stars.</th>
<th>There are an even/odd (circle one) number of stars.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td><img src="image1" alt="Array with 2 rows" /></td>
<td><img src="image2" alt="Redraw your picture with 1 less star." /></td>
<td><img src="image3" alt="There are an even/odd (circle one) number of stars." /></td>
<td><img src="image4" alt="There are an even/odd (circle one) number of stars." /></td>
</tr>
<tr>
<td>b.</td>
<td><img src="image5" alt="Array with 2 rows" /></td>
<td><img src="image6" alt="Redraw your picture with 1 more star." /></td>
<td><img src="image7" alt="There are an even/odd (circle one) number of stars." /></td>
<td><img src="image8" alt="There are an even/odd (circle one) number of stars." /></td>
</tr>
<tr>
<td>c.</td>
<td><img src="image9" alt="Array with 2 rows" /></td>
<td><img src="image10" alt="Redraw your picture with 1 less star." /></td>
<td><img src="image11" alt="There are an even/odd (circle one) number of stars." /></td>
<td><img src="image12" alt="There are an even/odd (circle one) number of stars." /></td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Even + Even = Even</th>
<th>Even + Odd = Odd</th>
<th>Odd + Odd = Even</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson 20 Homework

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.

   a. Add an even number to an even number.

      \[32 + 8 = 40\] \text{even} \\

   b. Add an odd number to an even number.

   c. Add an odd number to an odd number.
Cut Out Packet