3 GRADE

Mathematics Curriculum

SOLUTIONS

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GRADE 3 • MODULE 1

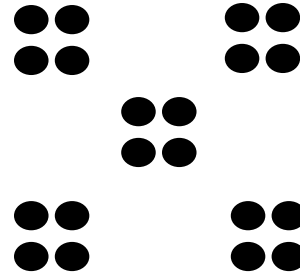## Properties of Multiplication and Division and Solving Problems with Units of 2–5 and 10

SOLUTIONS

Name _____ Date _____
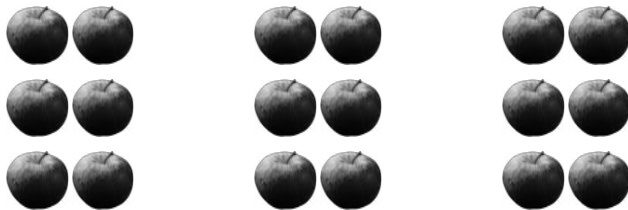
1. Fill in the blanks to make true statements.

a. 4 groups of five = _20_

   4 fives = _20_

   4 × 5 = _20_

b. 5 groups of four = _20_

   5 fours = _20_

   5 × 4 = _20_

c. 6 + 6 + 6 = _18_

   _3_ groups of six = _18_

   3 × _6_ = _18_

d. 3 + _3_ + _3_ + _3_ + _3_ + _3_ = _18_

   6 groups of _3_ = _18_

   6 × _3_ = _18_

2. The picture below shows 3 groups of hot dogs. Does the picture below show 3 × 3? Explain why or why not.

Yes because 3×3 means 3 groups of 3.

3. Draw a picture to show 4 × 2 = 8.
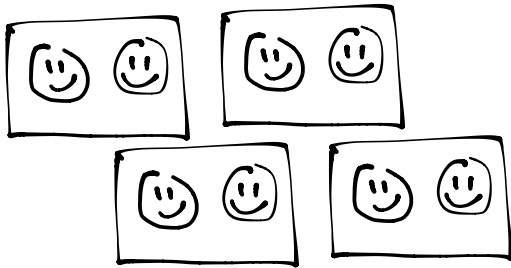
4. Circle the pencils below to show 3 groups of 6. Write addition and multiplication sentences to represent the problem.

COMMON CORE

Lesson 1:
Date:

Understand *equal groups of* as multiplication.
6/26/13

engage^ny

1.A.13
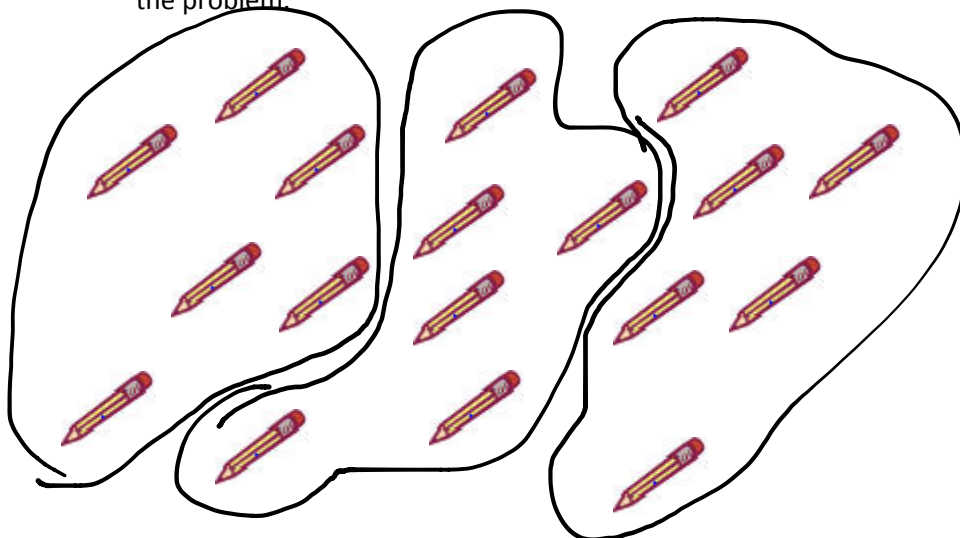
Name _____   Date _____

Use the arrays below to answer each set of questions.

1.

a. How many rows of erasers are there? _3_____

b. How many erasers are there in each row? _2_____

2.
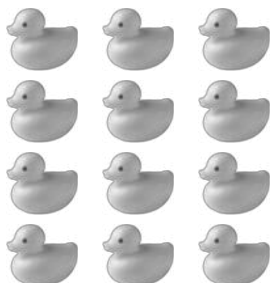
a. What is the number of rows? _4_____

b. What is the number of objects in each row? _3_____

3.

a. There are 3 squares in each row. How many squares are in 5 rows? _15_____

b. Write a multiplication fact to describe the array. _5×3____

4.

a. There are 6 rows of stars. How many stars are in each row? _4_____

b. Write a multiplication fact to describe the array. _6 × 4____

5. The triangles below show 3 groups of 4.

a. Redraw the triangles as an array that shows 3 rows of 4.
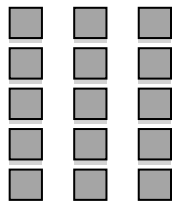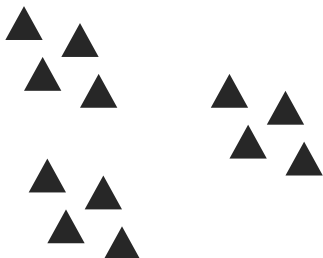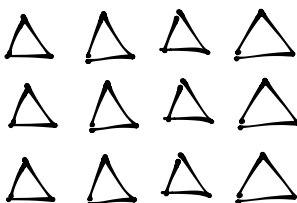

b. Compare the drawing to your array. How are they the same? How are they different?

Same number of triangles, but arranged differently.

6. Roger has a collection of stamps. He arranges the stamps into 5 rows of 4. Draw an array to represent Roger's stamps. Then write a multiplication sentence to describe the array.
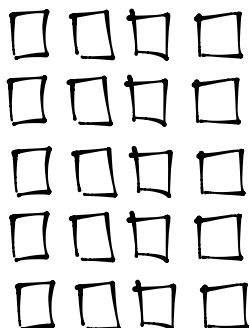
$5 \times 4 = 20$

7. Kimberly arranges her 18 markers in an array. Draw an array that Kimberly might make. Then write a multiplication sentence to match your array.

$3 \times 6 = 18$

Name _____   Date _____

Solve problems 1–4 using the pictures for each problem.

1.   There are 5 pineapples in each group. How many pineapples are there in 5 groups?

   a.   Number of groups: ____5_____ Size of each group: ____5_____

   b.   5 × 5 = ___25_____

   c.   There are ___25_____ pineapples altogether.
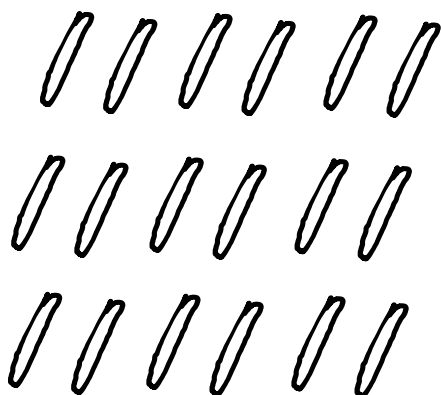
2.   There are ___4____ oranges in each basket. How many oranges are there in 6 baskets?
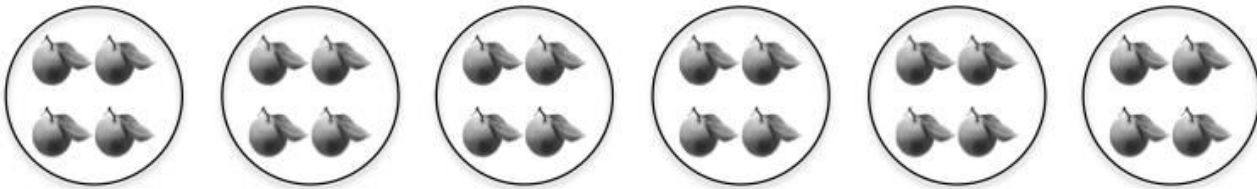
   a.   Number of groups: ____6_____ Size of each group: ____4_____

   b.   6 × ____4_____ = ___24_____

   c.   There are ___24___ oranges altogether.

3. There are 4 bananas in each row. How many bananas in ____4____ rows?
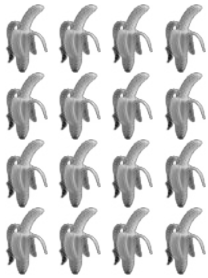
   a. Number of rows: ___4___   Size of each row: ___4___

   b. ___4___ × 4 = ___16___

   c. There are ___16___ bananas altogether.

---

4. There are ___3___ peppers in each row. How many peppers are there in 6 rows?

   a. Number of rows: ___6___   Size of each row: ___3___

   b. ___6___ × ___3___ = ___18___

   c. There are ___18___ peppers altogether.

---

5. Draw an array using factors 4 and 2. Then show a number bond where each part represents the amount in one row.

COMMON CORE   **Lesson 1:** Interpret the meaning of factors–the size of the group or the number of groups.

Date: 6/26/13

engage^ny   1.A.40
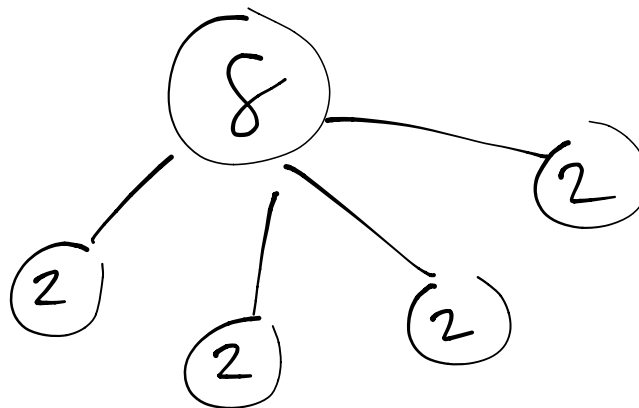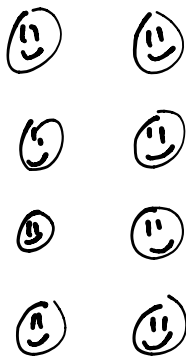
Name _____   Date _____

1.
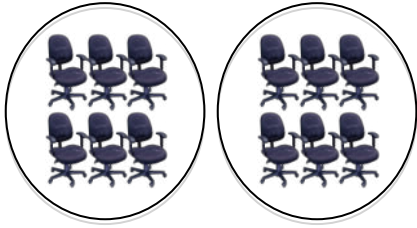
Divide 12 chairs into 2 equal groups.

There are ____6____ chairs in each group.

2.
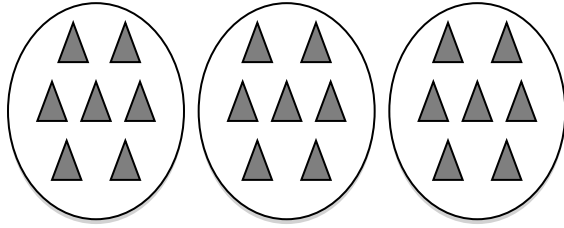
Divide 21 triangles into 3 equal groups.

There are ____7____ triangles in each group.

3.
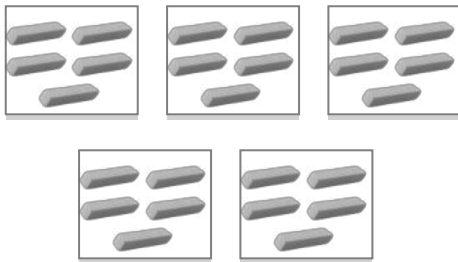
Divide 25 erasers into __5__ equal groups.

There are ____5____ erasers in each group.

4.
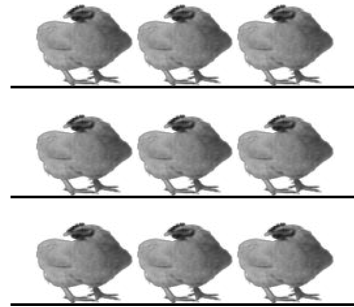
Divide __9__ chickens into __3__ equal groups.

There are ____3____ chickens in each group.

9 ÷ 3 = ____3____

5.
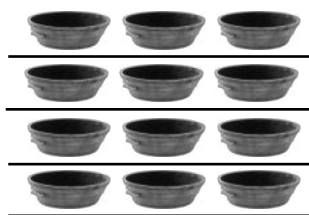
There are ____3____ buckets in each group.

12 ÷ 4 = ____3____

6.

16 ÷ 4 = ____4____

Lesson 4:
Date:

Understand the meaning of the unknown as the size of the group in division.
6/26/13

engage^ny
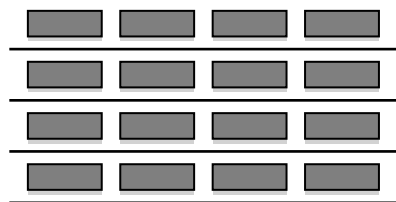
1.B.14

7. Andrew has 21 keys. He puts them in 3 equal groups. How many keys are in each group?

There are _____**7**_____ keys in each group.

21 ÷ 3 = ____**7**____

8. Mr. Doyle has 20 pencils. He divides them equally between 4 tables. Draw the pencils on each table.
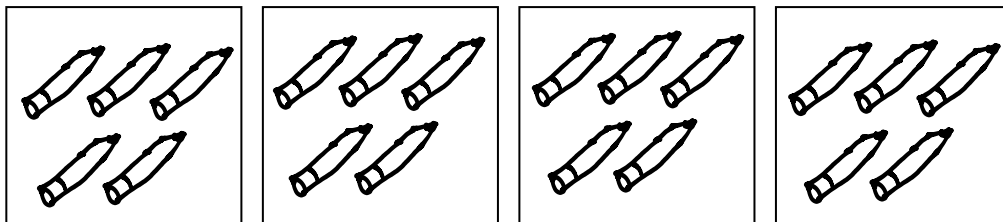
There are ____**5**____ pencils on each table.

20 ÷ ____**4**____ = ____**5**____

9. Jenna has markers. The picture shows how she placed them on her desk. Write a division sentence to represent how she equally grouped her markers.

There are ____**4**____ markers in each row.

____**20**____ ÷ ____**5**____ = ____**4**____

COMMON CORE

Lesson 4: Understand the meaning of the unknown as the size of the group in division.

Date: 6/26/13

engage^ny

1.B.15
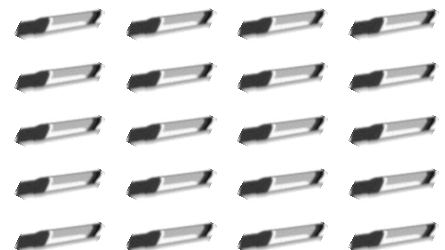
Name _____   Date _____

1.
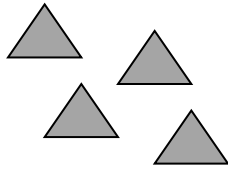
Divide 4 triangles into groups of 2.
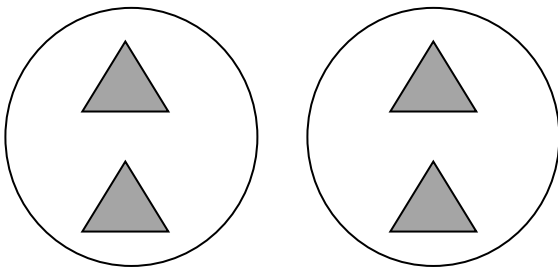
There are ___2___ groups of 2 triangles.

$4 \div 2 = 2$

2.
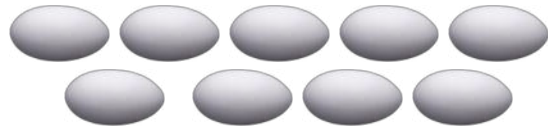
Divide 9 eggs into groups of 3.
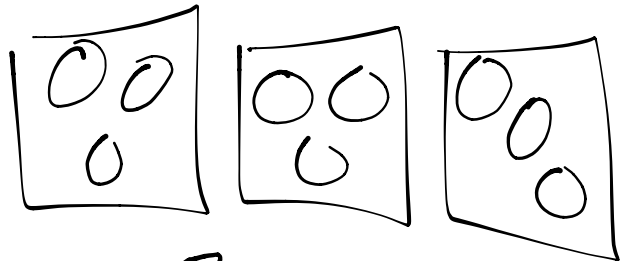
There are ___3___ groups.

$9 \div 3 =$ ___3___

3.

Divide 12 buckets of paint into groups of 3.

$12 \div 3 =$ ___4___

4.
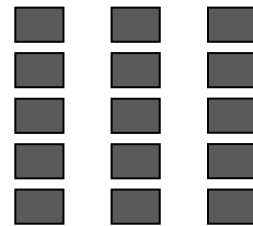
Group the squares to show $15 \div 5 =$ ___3___ where the unknown represents the number of groups.
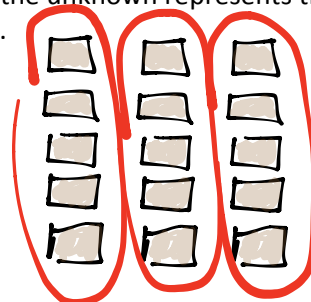
How many groups are there? ___3___

5. Daniel has 12 apples. He puts 6 apples in each bag. Circle the apples to find the number of bags Daniel makes.
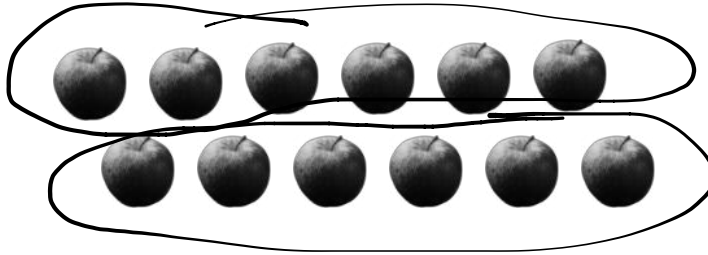
$$12 \div 6 = 2$$

a. Write a division sentence where the answer represents the number of Daniel's bags.

b. Draw a number bond to show Daniel's apples.
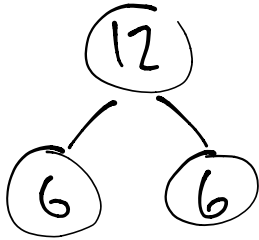
6. Jacob is drawing cats. He draws 4 legs on each cat, and a total of 24 legs.
   a. Use a count-by to find the number of cats Jacob draws. Make a drawing to match your counting.

4, 8, 12, 16, 20, 24

6 cats

b. Write a division sentence to represent the problem.

$$24 \div 4 = 6$$

Name _____   Date _____

1. Mr. Hannigan puts 12 pencils into boxes. Each box holds 4 pencils. Circle groups of 4 to show the pencils in each box.
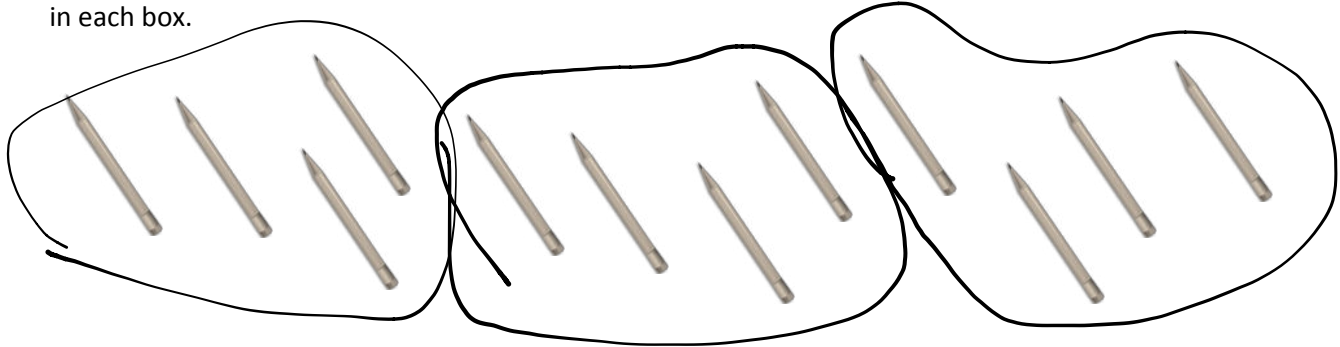
Mr. Hannigan needs __3__ boxes.

__3__ × 4 = 12

12 ÷ 4 = __3__

2. Mr. Hannigan places 12 pencils into 3 equal groups. Draw to show how many pencils are in each group.
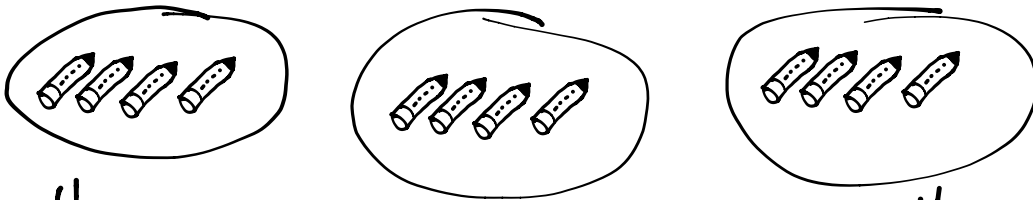
There are __4__ pencils in each group.

3 × __4__ = 12

12 ÷ 3 = __4__

3. Use an array to model Problem 1.

× × × ×
× × × ×
× × × ×

a) __3__ × 4 = 12

12 ÷ 4 = __3__

The number in the blanks represents:
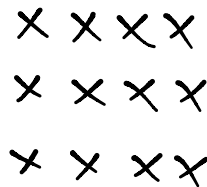
__Number of rows__.

b) 3 × __4__ = 12

12 ÷ 3 = __4__

The number in the blanks represents:

__Size of each row__.

COMMON CORE
Lesson 6: Interpret the unknown in division using the array model.
Date: 6/26/13
engage^ny 1.B.34

4. Judy washes 24 dishes. She then dries and stacks the dishes equally into 4 piles. How many dishes are in each pile?

    24 ÷ 4 = __**6**__

    4 × __**6**__ = 24

    What is the meaning of the unknown factor and quotient? __The number of plates__
    __in each pile.__

5. Nate solves the problem __**3**__ × 5 = 15 by writing and solving 15 ÷ 5 = __**3**__.   Explain why Nate's method works.
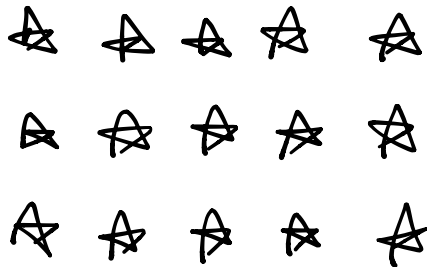
    Both problems describe an array
    with 15 stars. Each row has 5 stars.

6. The blanks in Problem 5 represent the number of groups. Draw an array to represent the number sentences.
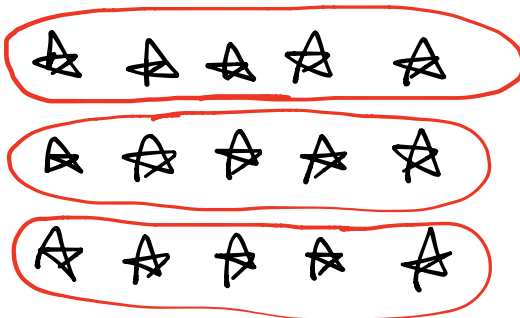
Name _____ Date _____

1. a. Draw an array that shows 7 rows of 2.
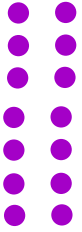
   b. Write a multiplication sentence where the first factor represents the number of rows.

   $\underline{7} \times \underline{2} = \underline{14}$

2. a. Draw an array that shows 2 rows of 7.
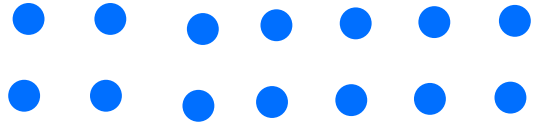
   b. Write a multiplication sentence where the first factor represents the number of rows.

   $\underline{2} \times \underline{7} = \underline{14}$

3. a. Turn your paper to look at the arrays in Problems 1 and 2 in different ways. What is the same and what is different about them?

   They both have 14 dots. The two rectangles are the same but they are rotated compared to one another.

   b. Why are the factors in your multiplication sentences in a different order?

   They are in a different order because the rows and columns were switched.

4. Write a multiplication sentence to match the number of groups. Skip-count to find the totals. The first one is done for you.

   a. 2 twos: $2 \times 2 = 4$

   b. 3 twos: $3 \times 2 = 6$

   c. 2 threes: $2 \times 3 = 6$

   d. 2 fours: $2 \times 4 = 8$

   e. 4 twos: $4 \times 2 = 8$

   f. 5 twos: $5 \times 2 = 10$

   g. 2 fives: $2 \times 5 = 10$

   h. 6 twos: $6 \times 2 = 12$

   i. 2 sixes: $2 \times 6 = 12$

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Lesson 7:   Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

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5. Write and solve multiplication sentences where the second factor represents the size of the row.
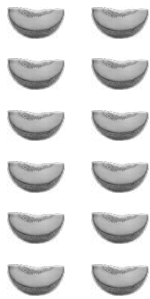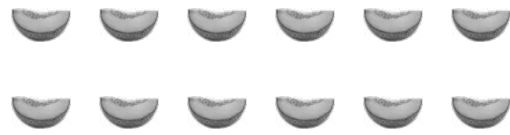
$6 \times 2 = 12$ $2 \times 6 = 12$

6. Angel writes 2 × 8 = 8 × 2 in his notebook. Do you agree or disagree? Draw arrays to help explain your thinking.

2×8
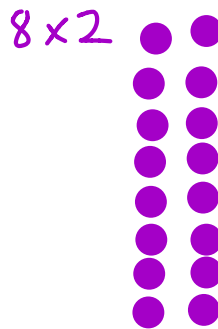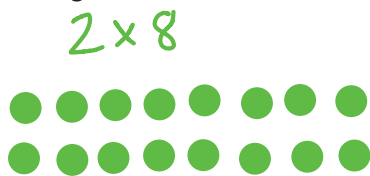
8×2 Both arrays have 16 dots.

7. Find the missing factor to make each equation true.

2 × 6 = 6 × __2__   __7__ × 2 = 2 × 7   9 × 2 = __2__ × 9   2 × __10__ = 10 × 2

8. Tamia buys 2 bags of candy. Each bag has 7 pieces of candy in it.
   a. Draw an array to show how many pieces of candy Tamia has altogether.

   b. Write and solve a multiplication sentence to describe the array.

   $2 \times 7 = 14$ (2 rows of 7.)

   c. Use the commutative property to write and solve a different multiplication sentence for the array.

   Since 2x7=14, then 7x2=14.

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Lesson 7:   Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

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Name _____   Date _____

1. Draw an array that shows 6 rows of 3.
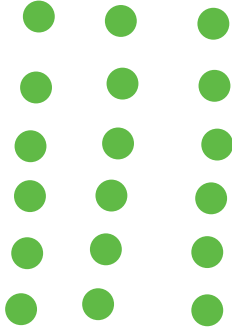
2. Draw an array that shows 3 rows of 6.
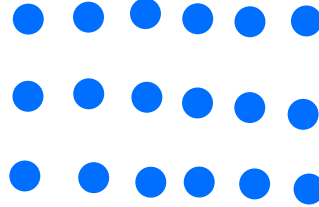
3. Write multiplication expressions for the arrays in Problems 1 and 2. Let the first factor in each expression represent the number of rows. Use the commutative property to make sure the equation below is true.

$$\underline{6} \times \underline{3} = \underline{3} \times \underline{6}$$

Problem 1   **Problem 2**

4. Write a multiplication sentence for each expression. You might skip-count to find the totals. The first one is done for you.

   a. 5 threes: _5 × 3 = 15_

   b. 3 fives: _3×5=15_

   c. 6 threes: _6×3=18_

   d. 3 sixes: _3×6=18_

   e. 7 threes: _7×3=21_

   f. 3 sevens: _3×7=21_

   g. 8 threes: _8×3=24_

   h. 3 nines: _3×9=27_

   i. 10 threes: _10×3=30_

5. Find the unknowns that make the equations true. Then, draw a line to match related facts.

   a. 3 + 3 + 3 + 3 + 3 + 3 = _18_

   b. 3 × 5 = _15_

   c. 8 threes + 1 three = _27_

   d. 3 × 9 = _27_

   e. _18_ = 6 × 3

   f. 15 = 5 × _3_

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Lesson 8:   Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

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6. Fernando puts 3 pictures on each page of his photo album. He puts pictures on 8 pages.

   a. Use circles to draw an array that represents the total number of pictures in Fernando's photo album.
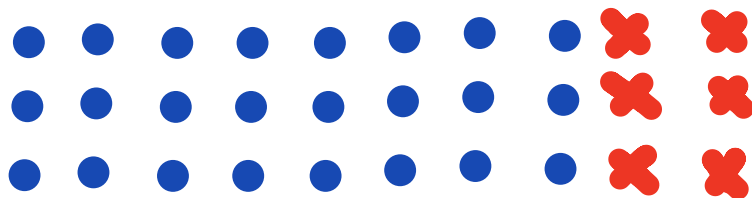
   b. Use your array to write and solve a multiplication sentence to find Fernando's total number of pictures.

   $3 \times 8 = 24$ or $8 \times 3 = 24$

   c. Fernando adds 2 more pages to his book. He puts 3 pictures on each new page. Draw x's to show the new pictures on the array in Part (a).

   d. Write and solve a multiplication sentence to find the new total number of pictures in Fernando's album.

   $3 \times 10 = 30$ or $10 \times 3 = 30$

7. Ivania recycles. She gets 3 cents for every can she recycles.

   a. How much money does Ivania make if she recycles 4 cans?

   $\underline{4} \times \underline{3} = \underline{12}$ cents   or 3×4

   b. How much money does Ivania make if she recycles 7 cans?

   $\underline{7} \times \underline{3} = \underline{21}$ cents

   or 3×7

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Lesson 8:   Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

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Name _____   Date _____

1. Dan organizes his star stickers into 3 rows of 4. Irene adds 2 more rows of stickers.   Complete the number sentences to describe the total number of stickers in the array.

a. (4 + 4 + 4) + (4 + 4) = __**20**__

b. 3 fours + __**2**__ fours = __**5**__ fours

c. __**4**__ × 5 = __**20**__

2. 7 × 2 = __**14**__

6 × 2 = **12**

1 × 2 = **2**

12 + 2 = __**14**__

__**7**__ × 2 = 14

3. 9 × 3 = __**27**__

10 × 3 = **30**

1 × 3 = **3**

30 − __**3**__ = 27

__**9**__ × 3 = 27

Lesson 9:   Find related multiplication facts by adding and subtracting equal groups in array models.
Date: 6/26/13

engage^{ny}   1.C.34
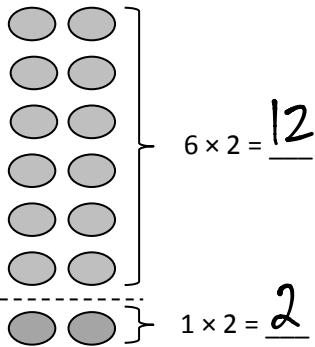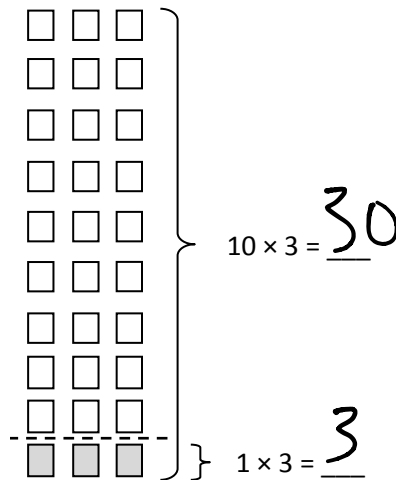
4. Franklin collects stickers. He organizes his stickers in 5 rows of 4 on his table.

    Draw an array that represents Franklin's stickers using an x to show each sticker.

    $5 \times 4 =$ __20__

    X X X X
    X X X X
    X X X X
    X X X X
    X X X X
    O O O O
    O O O O
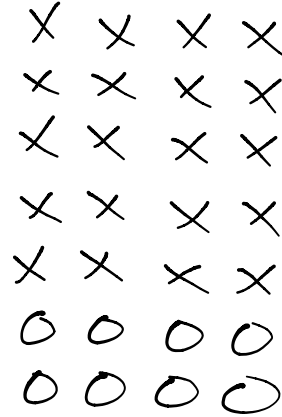
5. Franklin adds 2 more rows. Use circles to show his new stickers on the array in part 3a.

    a. Write and solve a multiplication sentence to represent the circles you added to the array.

        __2__ × 4 = __8__

    b. Complete the addition sentence to show how you added the totals of 2 multiplication facts to find Franklin's total number of stickers.

        __20__ + __8__ = 28

    c. Complete the unknown to show Franklin's total number of stickers.

        __7__ × 4 = 28

Lesson 9:   Find related multiplication facts by adding and subtracting equal groups in array models.
Date: 6/26/13

engage^ny   1.C.35

Name _____

Date _____

1. $6 \times 3 =$ __18__

$(4 \times 3) = 12$

$(2 \times 3) =$ __6__

$12 +$ __6__ $=$ __18__

$6 \times 3 =$ __18__

2. $8 \times 2 =$ __16__

$(\underline{4} \times 2) =$ __8__

$(\underline{4} \times 2) =$ __8__

$(4 \times 2) + (4 \times 2) =$ __8__ $+$ __8__

__8__ $\times 2 =$ __16__

COMMON CORE	**Lesson 10:** Model the distributive property with arrays to decompose units as a strategy to multiply.
	Date: 6/26/13

engage^{ny}

1.C.42
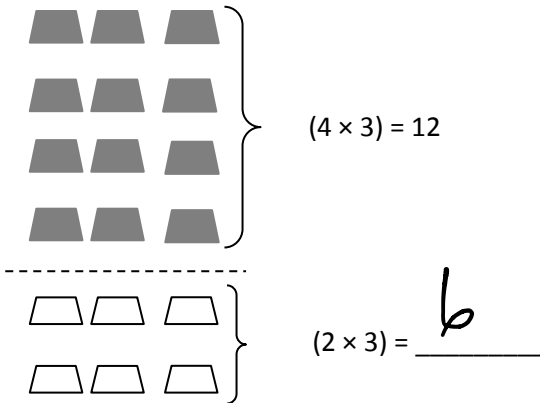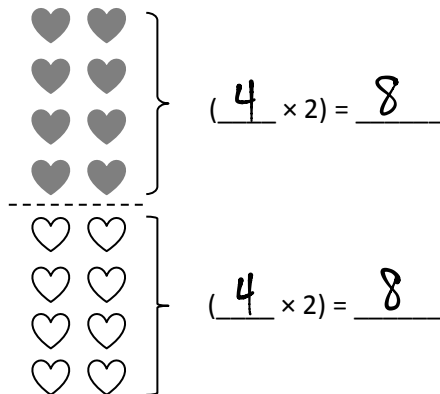
3. Adriana is organizing her books on shelves. She puts 3 books in each row.

    a. Use the multiplication sentences on the right to draw arrays to show the books on Adriana's top and bottom shelves.

$$\underline{5} \times 3 = 15$$

$$\underline{1} \times 3 = 3$$

    b. Adriana calculates the total number of books as shown below. Use the array you drew to help explain her calculation.

$$6 \times 3 = 15 + 3 = 18$$

$$6 \times 3 = 15 + 3$$

$$= 18$$

Name _____   Date _____

1. Fred has 10 pears. He puts 2 pears in each basket.

    a. Draw an array where each column represents a basket of pears.

$$\underline{10} \div 2 = \underline{5}$$

    b. Redraw the pears in each basket as a unit in the tape diagram. Label the diagram with known and unknown information from the problem.

    2 pears per basket

    10 pears total
    ? baskets
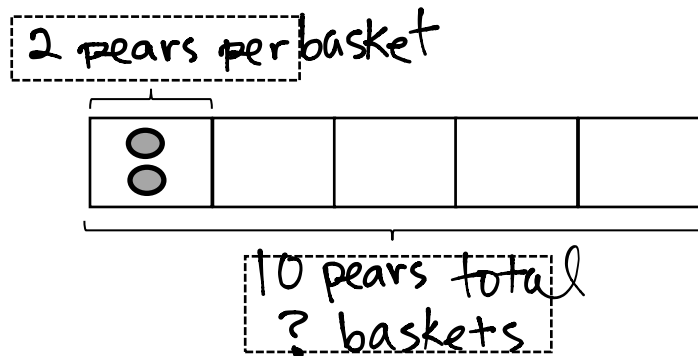
2. Ms. Meyer organizes 15 clipboards equally into 3 boxes. How many clipboards are in each box? Model the problem with both an array and a labeled tape diagram. Show each column as the number of clipboards in each box.

    ?

    15 total
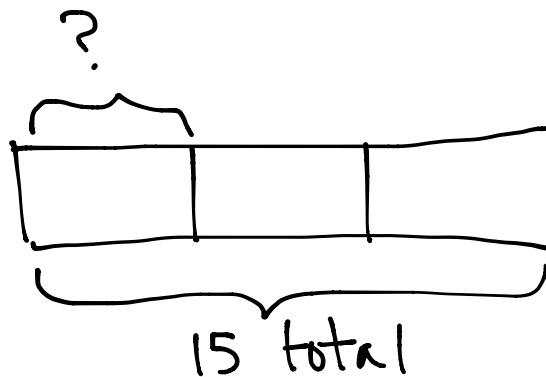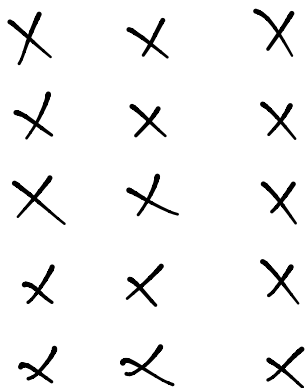
    There are ____5____ clipboards in each box.

COMMON CORE

Lesson 11:   Model division as the unknown factor in multiplication using arrays
and tape diagrams.
Date: 6/26/13

engage^ny   **1.D.12**

3. Sixteen action figures are arranged equally on 2 shelves. How many action figures are on each shelf? Model the problem with both an array and a labeled tape diagram. Show each column as the number of action figures on each shelf.

16 figures
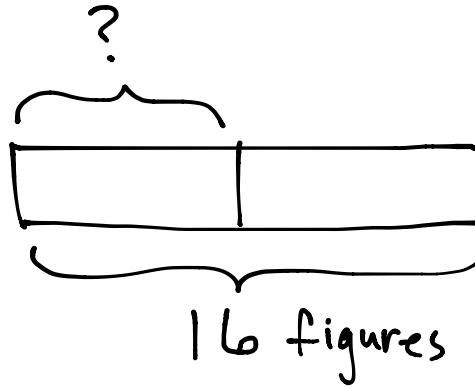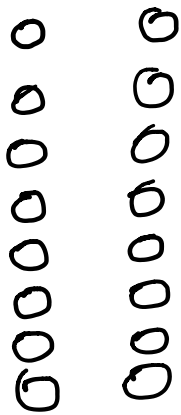
4. Jasmine puts 18 hats away. She puts an equal number of hats on 3 shelves. How many hats are on each shelf? Model the problem with both an array and a labeled tape diagram. Show each column as the number of hats on each shelf.

18 hats
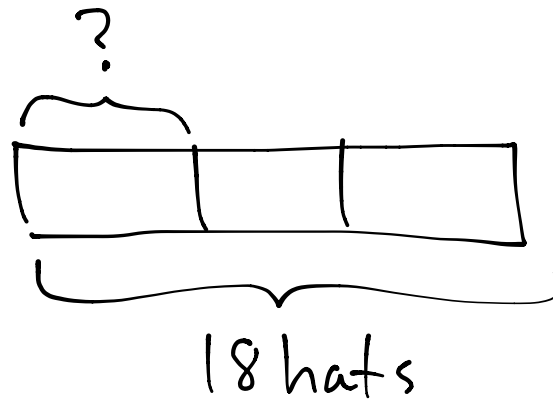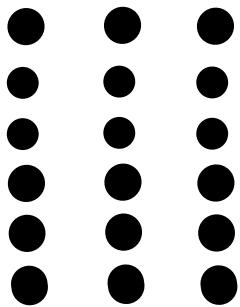
5. Corey checks out 2 books a week from the library. How many weeks will it take him to check out a total of 14 books?

7 weeks

14 books
7 weeks

COMMON CORE   Lesson 11:   Model division as the unknown factor in multiplication using arrays and tape diagrams.
Date: 6/26/13
engage^ny   1.D.13
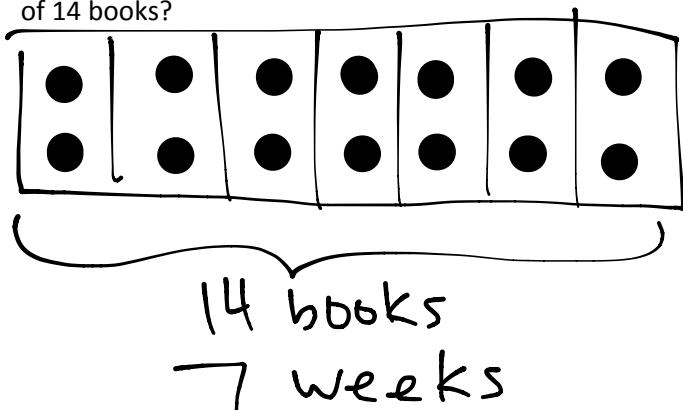
Name _____ Date _____

1. 10 people wait in line for the roller coaster. 2 people sit in each car. Find the total number of cars needed.
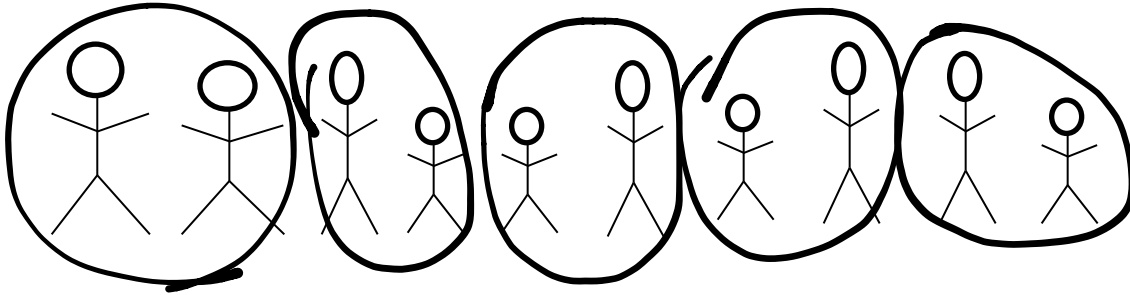
$10 ÷ 2 =$ __5__

There are __5__ cars needed.

2. Mr. Ramirez divides 12 frogs equally into 6 groups for students to study. How many frogs are in each group?
   Label known and unknown information on the tape diagram to help you solve.

? frogs

12 frogs

There are __2__ frogs in each group.

3. Match.

$10 ÷ 2$ $16 ÷ 2$ $18 ÷ 2$ $14 ÷ 2$

8   7   5   9

Lesson 12: Interpret the quotient as the number of groups or the number of objects in each group using units of 2.
Date: 6/26/13

engage^ny   **1.D.24**
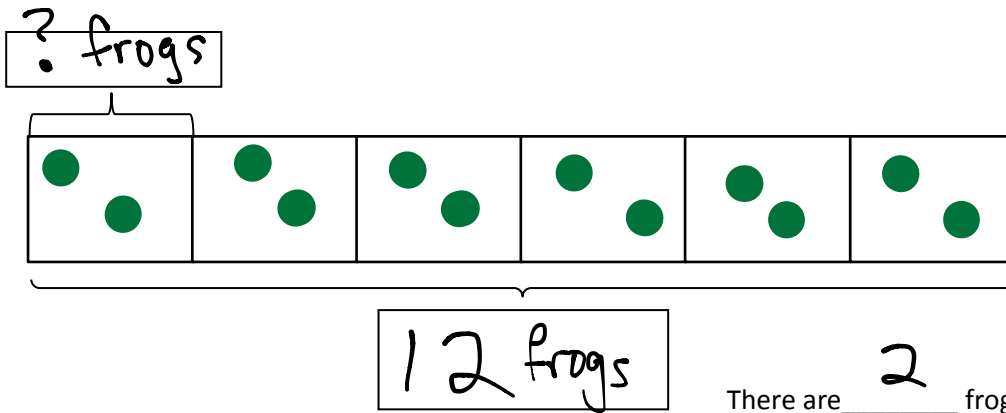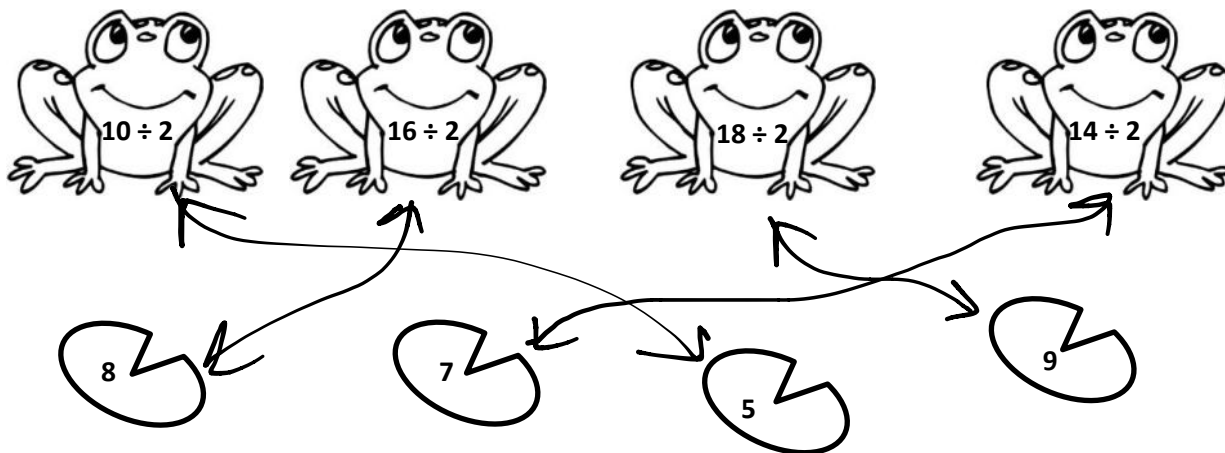
4. Betsy pours 16 cups of water to equally fill 2 bottles. How many cups of water are in each bottle? Label the tape diagram to represent the problem, including the unknown.

?

16 cups
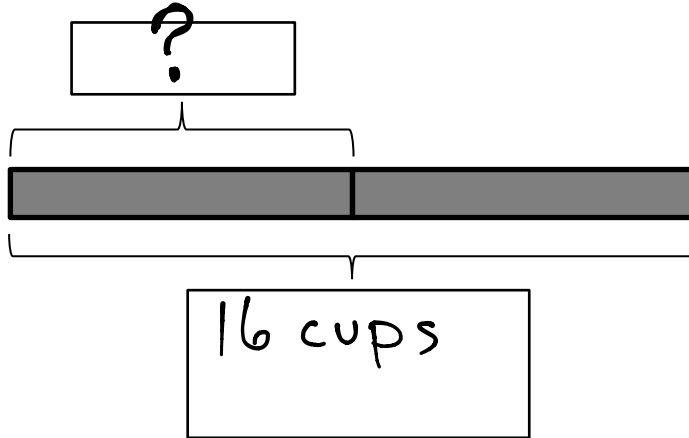
$16 \div 2 = 8$

There are _____**8**_____ cups of water in each bottle.

5. An earthworm tunnels 2 cm into the ground each day. The earthworm tunnels at about the same pace every day. How many days will it take the earthworm to tunnel 14 cm?
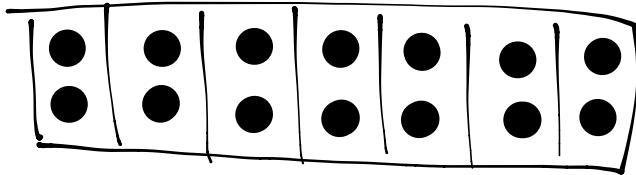
7 days

$14 \div 2 = 7$

6. Sebastian and Teshawn go to the movies. The tickets cost $16 in total. The boys share the cost equally. How much does Teshawn pay?

?

$16 \div 2 = 8$

$8

16

Lesson 12: Interpret the quotient as the number of groups or the number of objects in each group using units of 2.

Date: 6/26/13

engage^ny   1.D.25
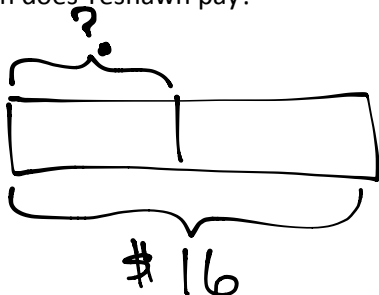
Name _____ Date _____

1. Complete the related expressions.

2 x 3 = 6 6 ÷ 3 = **2**	1 x 3 = **3** 3 ÷ 3 = **1**	7 x 3 = **21** **21** ÷ 3 = 7	9 x 3 = **27** **27** ÷ 3 = 9

2. Ms. Jones' pet fish are shown below. She keeps 3 fish in each tank.

   a. Circle to show how many fish tanks she has. Then skip-count to find the total number of fish.
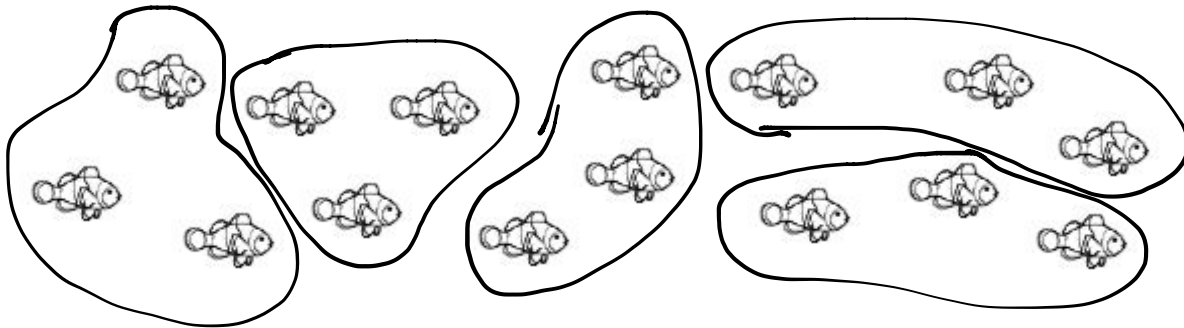
   b. Draw and label a tape diagram to represent the problem.

3
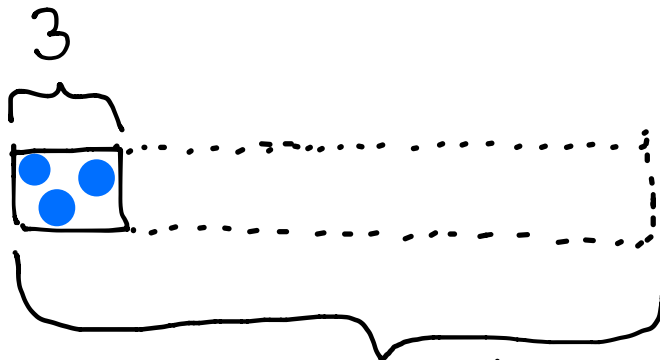
15 fish

? tanks

$$\underline{15} ÷ 3 = \underline{5}$$

Ms. Jones has ___**5**___ fish tanks.

Lesson 13: Interpret the quotient as the number of groups or the number of objects in each group using units of 3.

Date: 6/26/13

engage^ny 1.D.36

3. Juan buys 18 meters of wire. He cuts the wire into pieces that are each 3 meters long. How many pieces of wire does he cut?
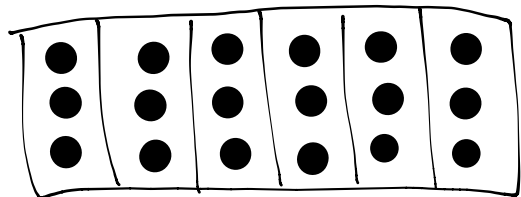
$18 \div 3 = 6$

(6 pieces)

4. A teacher has 24 pencils. They are divided equally among 3 students. How many pencils does each student get?
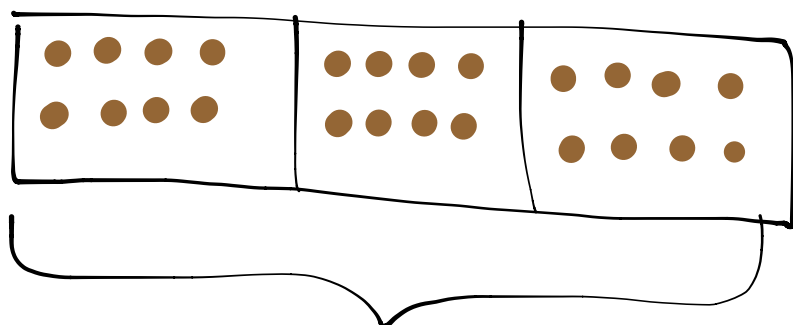
$24 \div 3 = 8$

(8 pencils)

24 pencils

5. There are 27 third graders working in groups of 3.   How many groups of third graders are there?

$27 \div 3 = 9$

(9 groups)

COMMON CORE

Lesson 13:   Interpret the quotient as the number of groups or the number of objects in each group using units of 3.
Date: 6/26/13

engage^{ny}   1.D.37
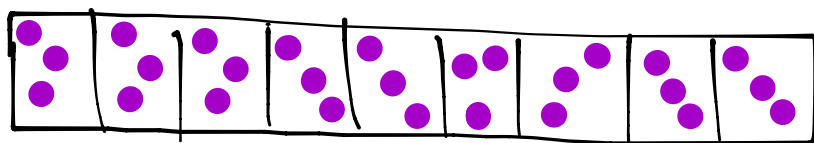
Name _____   Date _____

1. Skip-count by fours. Match each answer to the appropriate expression.

4

8

12

16

20

24

28

32

36

40

2 × 4

7 × 4

4 × 4

8 × 4

10 × 4

1 × 4

9 × 4

3 × 4

6 × 4

5 × 4

EUREKA
MATH™

Lesson 14:   Skip-count objects in models to build fluency with multiplication facts
using units of 4.

193

2. Lisa places 5 rows of 4 juice boxes in the refrigerator. Draw an array and skip-count to find the total number of juice boxes.

● ● ● ● ● 4
● ● ● ● ● 8
● ● ● ● ● 12
● ● ● ● ● 16
● ● ● ● ● 20
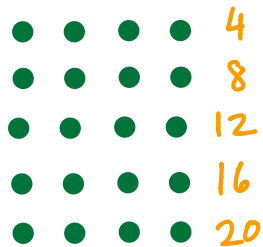
$5 \times 4 = 20$

There are ___20___ juice boxes in total.

3. Six folders are placed on each table. How many folders are there on 4 tables? Draw and label a tape diagram to solve.

| 6 | 6 | 6 | 6 |

24
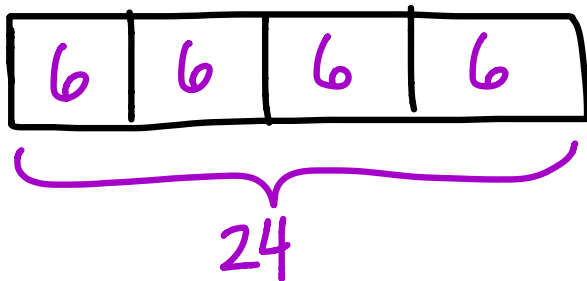
$4 \times 6 = 24$

There are 24 folders in all.

4. Find the total number of corners on 8 squares.

| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

$8 \times 4 = 32$

There are 32 corners on 8 squares.

Lesson 14:   Skip-count objects in models to build fluency with multiplication facts using units of 4.

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EUREKA MATH™

Name _____   Date _____

1. Label the tape diagrams and complete the equations. Then draw an array to represent the problems.

a.

3

☺☺☺ ☺☺☺ ☺☺☺ ☺☺☺

12

4

☺☺☺☺ ☺☺☺☺ ☺☺☺☺

12

$4 \times 3 = 12$

$3 \times 4 = 12$

● ● ● ●
● ● ● ●
● ● ● ●

b.

9

▲▲▲
▲▲▲
▲▲▲

36

$4 \times 9 = 36$

4

▲
▲
▲

36

$9 \times 4 = 36$

Lesson 15: Relate arrays to tape diagrams to model the commutative property of multiplication.
Date: 6/26/13

engage^{ny}   1.E.23

c.

$$\underline{6} \times 4 = \underline{24}$$

24

6
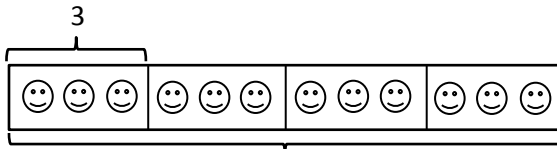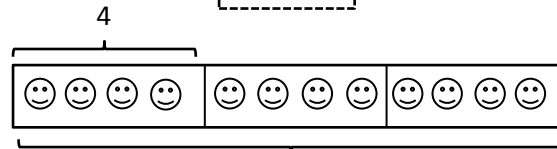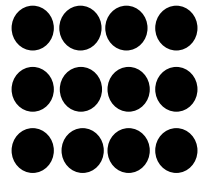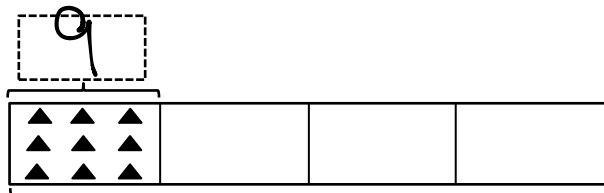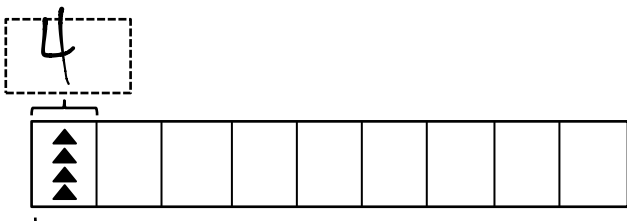
$$4 \times \underline{6} = \underline{24}$$

24

2. 7 clowns hold 4 balloons each at the fair. Draw and label a tape diagram to show the total number of balloons the clowns hold.

4

? balloons

$$7 \times 4 = 28$$

(28 balloons)

3. George swims 7 laps in the pool each day. How many laps does George swim after 4 days? Draw and label a tape diagram to solve.

7 laps

? laps

$$4 \times 7 = 28$$

(28 laps)

Name _____   Date _____

1. Label the array. Then fill in the blanks below to make the statements true.

a. **6 × 4 =** 24
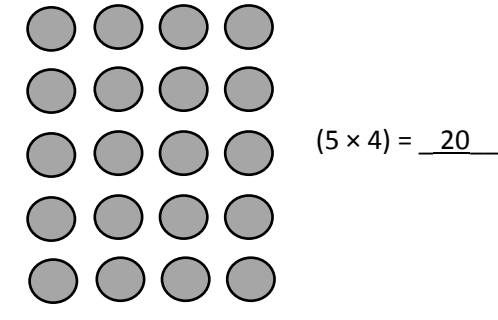
(5 × 4) = __20__
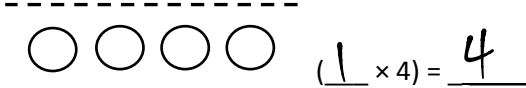
(1 × 4) = 4 **(6 × 4) = (5 × 4) + (** 1 **× 4)**

= __20__ + 4

= 24

b. **8 × 4 =** 32

(5 × 4) = 26

(3 × 4) = 12

(8 × 4) = (5 × 4) + (3 **× 4)**

= 26 + 12

= 32

Lesson 16: Use the distributive property as a strategy find related multiplication facts.

Date: 6/26/13

engage^ny   **1.E.34**
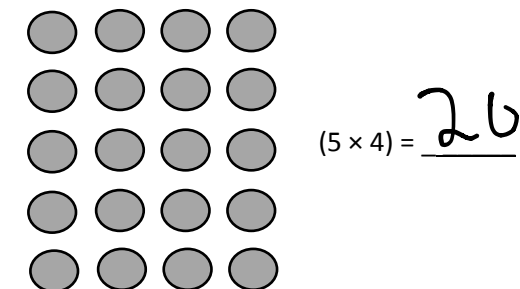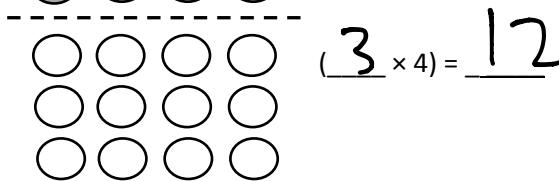
2. Match the multiplication facts with their answers.

4 × 6   4 × 7   4 × 8   4 × 9

32   28   36   24

3. The array below shows one strategy for solving 4 x 9. Explain the strategy using your own words.

(5 × 4) = 20

(4 × 4) = 16

9 fours

5 fours   4 fours

20   +   16   = 36

COMMON CORE

Lesson 16:   Use the distributive property as a strategy find related multiplication facts.

Date: 6/26/13

engage^ny   **1.E.35**

Name _____ Date _____

1. Use the array to complete the related number sentences.

$1 \times 4 =$ **4**   **4** $\div 4 = 1$

$2 \times 4 =$ **8**   **8** $\div 4 = 2$

3 $\times 4 = 12$ $12 \div 4 =$ **3**

4 $\times 4 = 16$ $16 \div 4 =$ **4**

5 $\times$ **4** $= 20$ $20 \div$ **4** $=$ **5**

6 $\times$ **4** $= 24$ $24 \div$ **4** $=$ **6**

7 $\times 4 =$ **28**   **28** $\div 4 =$ **7**

8 $\times 4 =$ **32**   **32** $\div 4 =$ **8**

9 $\times$ **4** $=$ **36**   **36** $\div$ **4** $=$ **9**

10 $\times$ **4** $=$ **40**   **40** $\div$ **4** $=$ **10**

COMMON CORE | Lesson 17: | Model the relationship between multiplication and division.
Date: | 6/26/13
engage^ny | 1.E.46
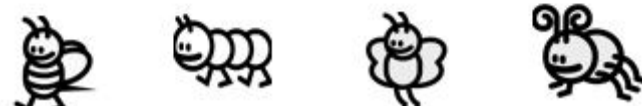
2. The teacher puts 32 students into groups of 4. How many groups does she make? Draw and label a tape diagram to solve.

$$32 \div 4 = 8$$

8 groups

4
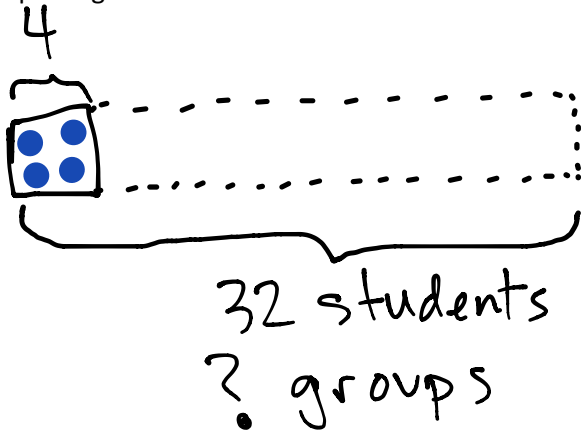
32 students
? groups

3. The store clerk arranges 24 toothbrushes into 4 equal rows. How many toothbrushes are in each row?
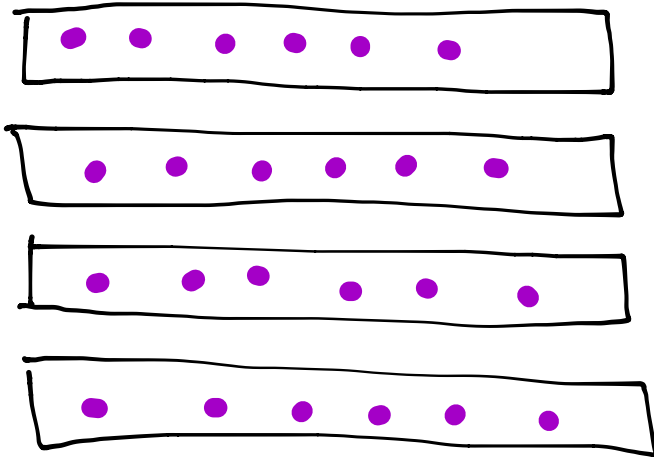
$$24 \div 4 = 6$$

6 toothbrushes

4. An art teacher has 40 paint brushes. She divides them equally between her 4 students. She finds 8 more brushes and divides these equally between the students as well. How many brushes does each student receive?

$$40 \div 4 = 10 \qquad 8 \div 4 = 2$$

$$10 + 2 = 12 \qquad \text{(12 brushes)}$$

COMMON CORE | Lesson 17: Model the relationship between multiplication and division.
Date: 6/26/13

engage^{ny}   1.E.47

Name _____   Date _____

1. Match.

7 tens

| 5 tens | 2 tens |

| 8 fours |

| 5 fours | 3 fours |

| 9 tens |

| 6 tens | 3 tens |

| 7 threes |

| 5 threes | 2 threes |

(5 × 3) + (2 × 3) = 21

(6 × 10) + (3 × 10) = 90

(5 × 4) + (3 × 4) = 32

(5 × 10) + (2 × 10) = 70

2. $9 \times 4 =$ __36__   ANSWERS WILL VARY

9×4

7×4 2×4

(7 × 4) + (2 × 4) =

28 + 8 = 36

$9 \times 4 =$ 36

---

engage^{ny} **1.F.12**
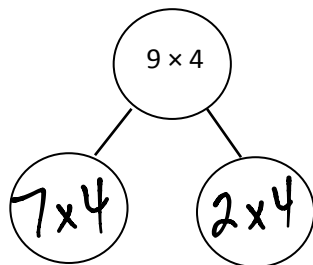
3. Lydia makes 10 pancakes. She tops each pancake with 4 blueberries. How many blueberries does Lydia use in all?

$$10 \times 4 = 40$$

Lydia uses ____40____ blueberries in all.

4. Steven solves 7×3 using the distributive property. Show an example of what Steven's work might look like below.

$$7 \times 3 = 5 \times 3 + 2 \times 3$$
$$= 15 + 6$$
$$= 21$$

5. There are 7 days in 1 week. How many days are there in 10 weeks?

$$10 \times 7 = 70$$

70 days

Name _____   Date _____

1. Label the array. Then complete the equations to make statements that are true.   .

a.   18 ÷ 3 = __6__

▲ ▲ ▲
▲ ▲ ▲   (9 ÷ 3) = 3
▲ ▲ ▲
- - - - - - - - - -
△ △ △
△ △ △   (9 ÷ 3) = __3__
△ △ △

(18 ÷ 3) = (9 ÷ 3) + (9 ÷ 3)

= __3__ + __3__

= __6__

b.   21 ÷ 3 = __7__

▲ ▲ ▲
▲ ▲ ▲
▲ ▲ ▲   (15 ÷ 3) = 5
▲ ▲ ▲
▲ ▲ ▲
- - - - - - - - - -
△ △ △
△ △ △   (6 ÷ 3) = __2__

(21 ÷ 3) = (15 ÷ 3) + (6 ÷ 3)

= __5__ + __2__

= __7__

c.   24 ÷ 4 = __6__

▲ ▲ ▲ ▲
▲ ▲ ▲ ▲
▲ ▲ ▲ ▲   (20 ÷ 4) = __5__
▲ ▲ ▲ ▲
▲ ▲ ▲ ▲
- - - - - - - - - - -
△ △ △ △   (4 ÷ 4) = __1__

(24 ÷ 4) = (20 ÷ 4) + (__4__ ÷ 4)

= __5__ + __1__

= __6__

d.   36 ÷ 4 = __9__

▲ ▲ ▲ ▲
▲ ▲ ▲ ▲
▲ ▲ ▲ ▲   (20 ÷ 4) = __5__
▲ ▲ ▲ ▲
▲ ▲ ▲ ▲
- - - - - - - - - - -
△ △ △ △
△ △ △ △
△ △ △ △   (16 ÷ 4) = __4__
△ △ △ △

(36 ÷ 4) = (__20__ ÷ 4) + (__16__ ÷ 4)

= __5__ + __4__

= __9__

4. Match equal expressions.

| 28 ÷ 2 | 33 ÷ 3 | 36 ÷ 3 | 26 ÷ 2 |

| (30 ÷ 3) + (3 ÷ 3) | (20 ÷ 2) + (6 ÷ 2) | (30 ÷ 3) + (6 ÷ 3) | (20 ÷ 2) + (8 ÷ 2) |

5. Alex draws the array below to find the answer to 35 ÷ 5. Explain Alex's strategy.

$$20 \div 5 = 4$$

$$15 \div 5 = 3$$

$$35 \div 5 = (20 \div 5) + (15 \div 5)$$

$$= 4 + 3$$

$$= 7$$

Name _____   Date _____

1. Jerry buys a pack of pencils that costs $3. David buys 4 sets of markers. Each set of markers also costs $3.

$3

9

Pencils

Markers

12
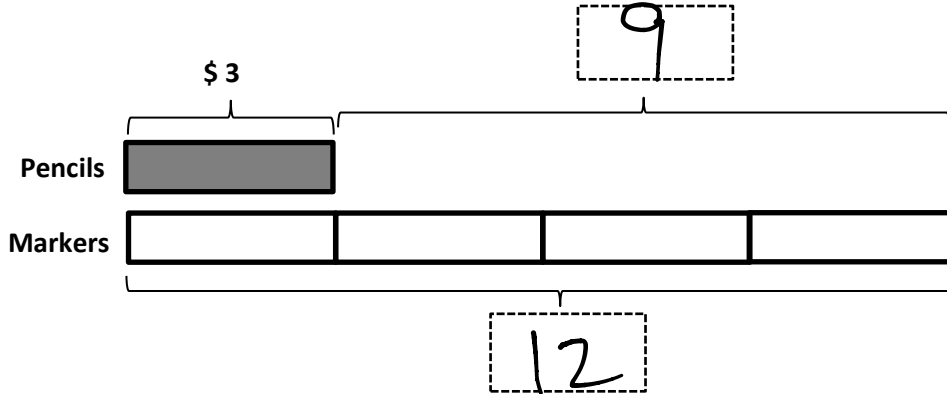
a. What is the total cost of the markers?

$$4 \times 3 = 12 \qquad \boxed{\$12}$$

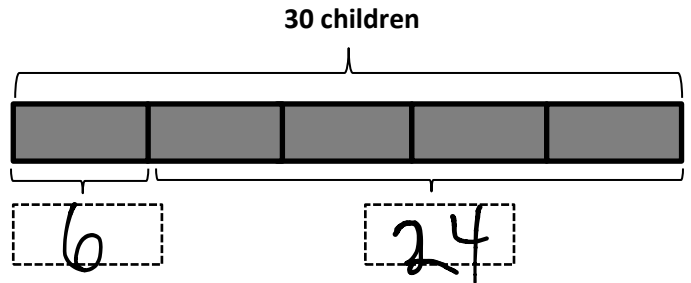b. How much more does David spend on 4 sets of markers than Jerry spends on a pack of pencils?

$$12 - 3 = 9 \qquad \boxed{\$9}$$

---

2. Thirty students are eating lunch at 5 tables. Each table has the same number of students.

30 children

a. How many students are sitting at each table?

$$30 \div 5 = 6$$

6   24

b. How many students are sitting at 4 tables?

$$4 \times 6 = 24$$

3. The teacher has 12 green stickers and 15 purple stickers. Three super star students are given an equal number of each color sticker. How many green and purple stickers does each student get?
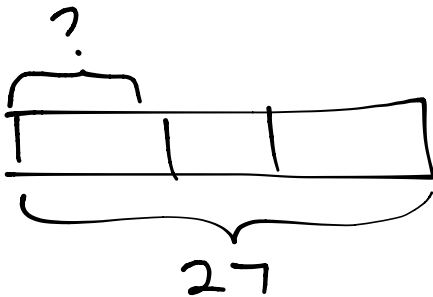
$$(12 \div 3) + (15 \div 3)$$
$$4 \quad + \quad 5$$
$$9$$

Each student gets 9 stickers

---

4. Three friends go apple picking. They pick 13 apples on Saturday and 14 apples on Sunday. They share the apples equally. How many apples does each person get?

$$13 + 14 = 27$$

$$27 \div 3 = 9$$

9 apples

27

---

5. The store has 28 notebooks in packs of 4. Three packs of notebooks are sold. How many packs of notebooks are left?

4

4 packs are left

28

COMMON CORE | Lesson 20: | Solve two-step word problems involving multiplication and division and assess the reasonableness of answers. | engage^ny | 1.F.35

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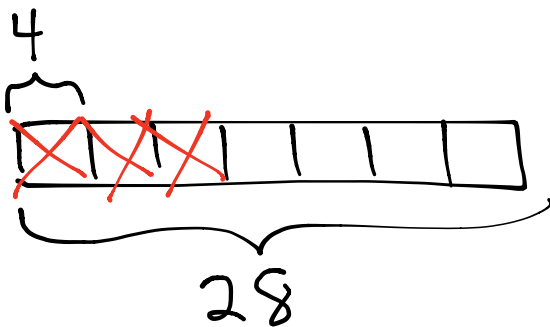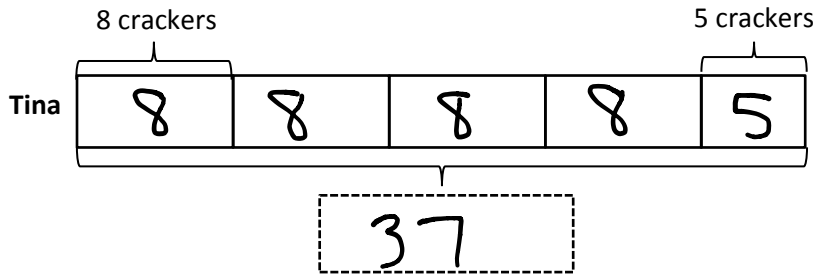
Name _____   Date _____

1. Tina eats 8 crackers for a snack each day at school. On Friday she drops 3 and only eats 5. Write and solve an equation to show the total number of crackers Tina eats during the week.
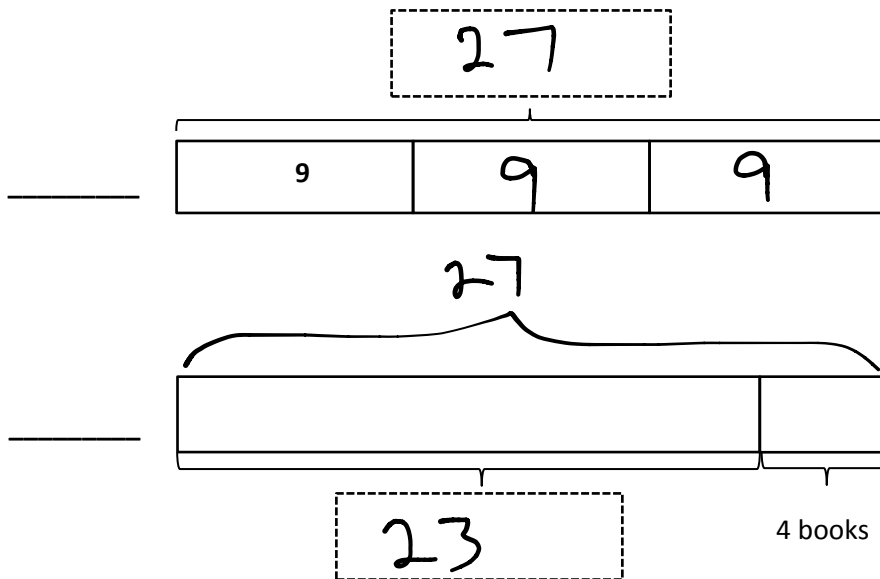
8 crackers   5 crackers

Tina | 8 | 8 | 8 | 8 | 5 |

37

$4 \times 8 = 32$

$32 + 5 = 37$

Tina eats _____**37**_____ crackers.

2. Ballio has a reading goal. He checks 3 boxes of 9 books out from the library. After finishing them, he realizes that he beat his goal by 4 books! Label the tape diagrams to find Ballio's reading goal.

27

_____ | 9 | 9 | 9 |

27

_____ | | 4 books |

23

Ballio's goal is to read __**23**__ books.

Lesson 21: Solve two-step word problems involving all four operations and assess the reasonableness of answers.
Date: 6/26/13

engage^ny   **1.F.45**
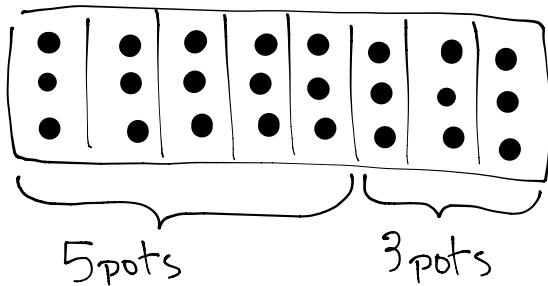
3. Mr. Nguyen plants 24 trees around the neighborhood pond. He plants equal numbers of Maple, Pine, Spruce, and Birch trees. He waters the Spruce and Birch trees before it gets dark. How many trees does Mr. Nguyen still need to water? Draw and label a tape diagram.

6

| M | P | S̶ | B̶ |

24
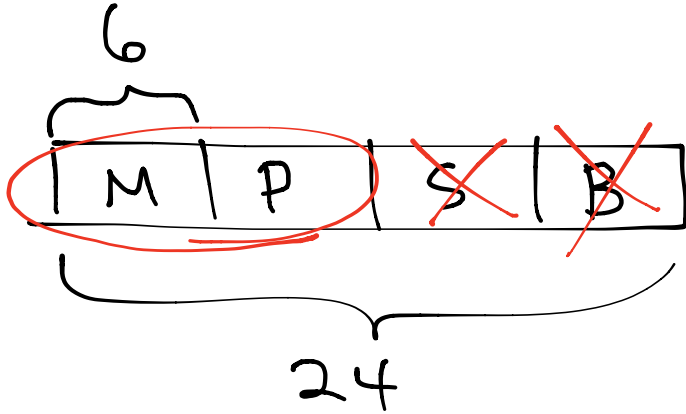
Still needs to water 12 trees.

4. Anna buys 24 seeds and plants 3 in each pot. She has 5 pots. How many more pots does Anna need to plant all of her seeds?

Anna needs to by 3 more pots.

5pots   3pots

Lesson 21:   Solve two-step word problems involving all four operations and assess the reasonableness of answers.
Date: 6/26/13

engage^{ny}   1.F.46