3 GRADE

Mathematics Curriculum

ANSWER KEY

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GRADE 3 • MODULE 3

Multiplication and Division with Units of 0, 1, 6–9, and Multiples of 10

ANSWER KEY

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COMMON CORE

Module 3:   Multiplication and Division with Units of 0, 1, 6–9, and
            Multiples of 10
Date: 7/31/13

engage^ny

Name _____   Date _____

1. Complete the charts below.

    a. A tricycle has 3 wheels.

Number of tricycles	3	4	5	6	7
Total number of wheels	9	12	15	18	21
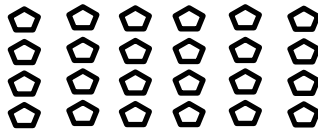
    b. A tiger has 4 legs.

Number of tigers	5	6	7	8	9
Total number of legs	20	24	28	32	36
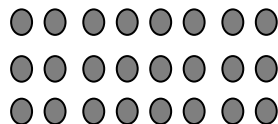
    c. A pack has 5 erasers.

Number of packs	6	7	8	9	10
Total number of erasers	30	35	40	45	50

2. Write two multiplication facts for each array.

$$24 = 4 \times 6$$
$$24 = 6 \times 4$$

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

3. Match the expressions.

3 × 6	7 threes
3 sevens	2 × 10
2 eights	9 × 5
5 × 9	8 × 2
10 twos	6 × 3
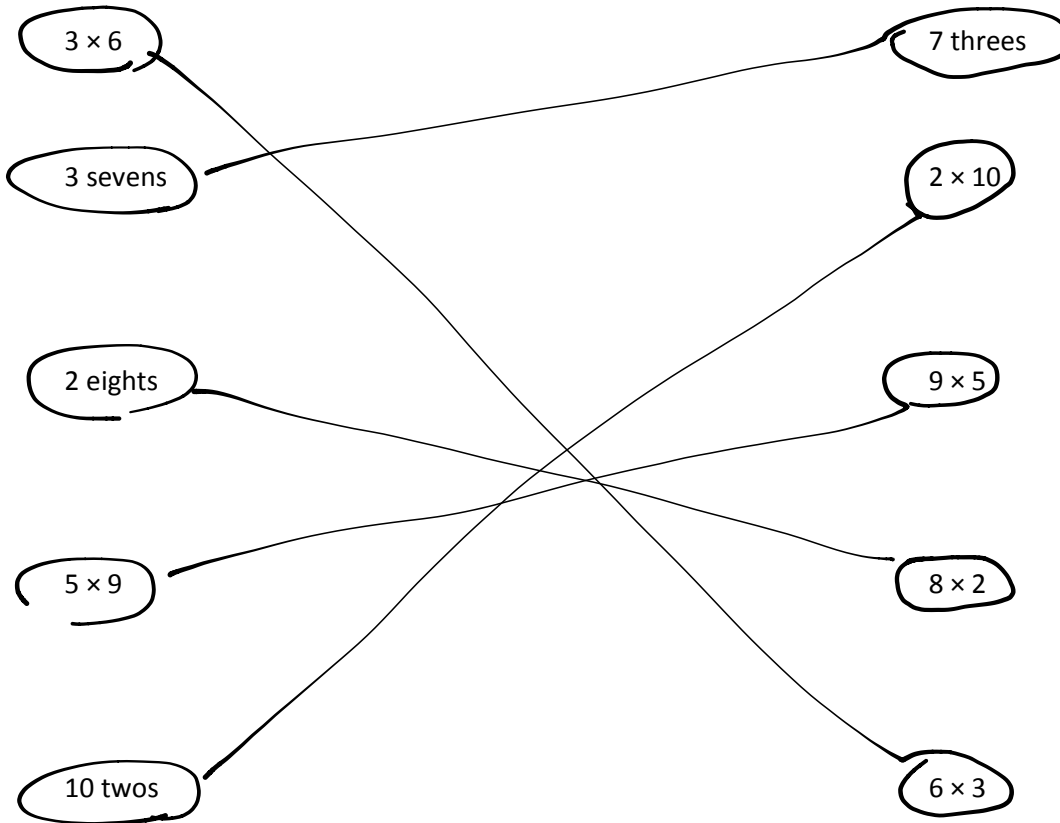
4. Complete the equations.

a. 2 sixes = **6** twos

= **12**

b. **3** × 6 = 6 threes

= **18**

c. 4 × 8 = **8** × 4

= **32**

d. 4 × **7** = **7** × 4

= **28**

e. 5 twos + 2 twos = **7** × **2**

= **14**

f. **5** fives + 1 five = 6 × 5

= **30**

Name _____   Date _____

1. Each [cube] has a value of 9.
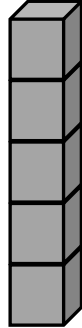
Unit form: **5 nines**

Facts: 5 × **9** = **9** × 5

Total = **45**

Unit form: 6 nines = **5** nines + **1** nine

= 45 + **9**

= **54**

Facts: **6** × **9** = **54**

9 × **6** = **54**

Lesson 2: Apply the distributive and commutative properties to relate multiplication facts 5 x *n* + *n* to 6 x *n* and *n* x 6 where *n* is the size of the unit.

Date: 7/31/13

3.A.25

2. There are 6 blades on each windmill. How many total blades are on 7 windmills? Use a fives fact to solve.

$$7 \text{ sixes} = 5 \text{ sixes} + 2 \text{ sixes}$$
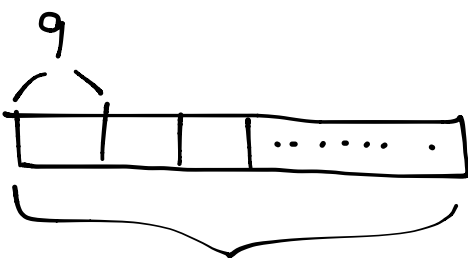$$= 30 + 12$$
$$= 42$$

There are 42 blades on 7 windmills.

3. Juanita organizes her magazines into 3 equal piles. She has a total of 18 magazines. How many magazines are in each pile?

?

| 6 | 6 | 6 |

18
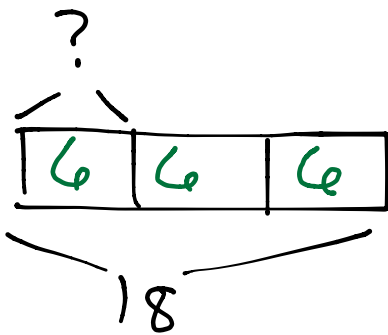
$$3 \times \underline{6} = 18$$
$$18 \div 3 = 6$$

There are 6 magazines in each pile.

4. Markuo spends $27 on some plants. Each plant costs $9. How many plants does he buy?

9

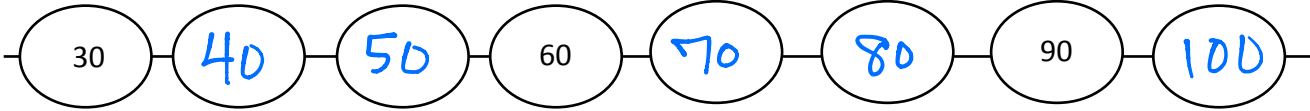27 is how many 9s?

$$9 \times \underline{3} = 27$$
$$27 \div 9 = 3$$

Markuo buys 3 plants.

Lesson 2: Apply the distributive and commutative properties to relate multiplication facts $5 \times n + n$ to $6 \times n$ and $n \times 6$ where n is the size of the unit.

Date: 7/31/13

engage^{ny}　3.A.26

Name _____   Date _____

1. a.   Complete the pattern.

| 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

b.   Find the value of the unknown.

$10 \times 2 = d$ d = __20__ $10 \times 6 = w$ w = **60**

$3 \times 10 = e$ e = **30** $10 \times 7 = n$ n = **70**

$f = 4 \times 10$ f = **40** $g = 8 \times 10$ g = **80**

$p = 5 \times 10$ p = **50**

2.   Each equation contains a letter representing the unknown. Find the value of the unknown.

$8 \div 2 = n$	n = **4**
$3 \times a = 12$	a = **4**
$p \times 8 = 40$	p = **5**
$18 \div 6 = c$	c = **3**
$d \times 4 = 24$	d = **6**
$h \div 7 = 5$	h = **35**
$6 \times 3 = f$	f = **18**
$32 \div y = 4$	y = **8**

3. Pedro buys 4 books at the fair for $7 each.

   a. What is the total amount Pedro spends on 4 books? Use the letter *b* to represent the total amount Pedro spends, and then solve the problem.
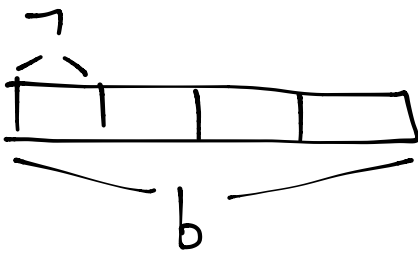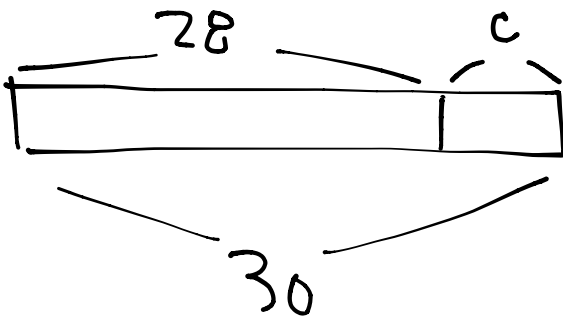
$$4 \times 7 = b$$
$$b = 28$$

Pedro spends $28 on books.

   b. Pedro hands the cashier 3 ten dollar bills. How much change will he receive? Write an equation to solve. Use the letter *c* to represent the unknown.
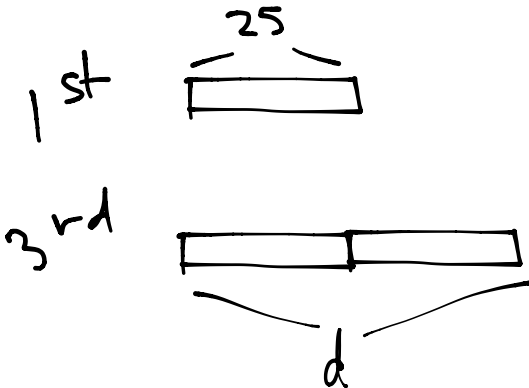
$$\$30 - \$28 = c$$
$$c = \$2$$

Pedro will get $2 in change.

4. On field day, the first grade dash is 25 meters long. The third grade dash is twice the distance of the first grade dash. How long is the third grade dash? Use a letter to represent the unknown and solve.

$$25 \times 2 = d$$
$$d = 50 \text{ meters}$$

The 3rd grade dash is 50 meters.

COMMON CORE

Lesson 3:   Multiply and divide with familiar facts using a letter to represent the unknown.

Date: 7/31/13

engage^{ny}   **3.A.36**

Name _____   Date _____

1. Use number bonds to help you skip-count by six by either making a ten or adding to the ones.

a. $6 + 6 =$ __10__ + __2__ $= 12$
    4   2

b. $12 + 6 =$ __10__ + __8__ $= 18$
    10   2

c. $18 + 6 = 20 + 4 = 24$
    2   4

d. $24 + 6 = 20 + 10 = 30$
    20   4

e. $30 + 6 = 36$

f. $36 + 6 = 40 + 2 = 42$
    4   2

g. $42 + 6 = 40 + 8 = 48$
    40   2

h. $48 + 6 = 50 + 4 = 54$
    2   4

i. $54 + 6 = 50 + 10 = 60$
    50   4

COMMON CORE

Lesson 4:   Count by units of 6 to multiply and divide using number bonds to decompose.

Date: 7/31/13

engage^ny   3.B.12

2. Count by six to fill in the blanks below.

6, **12** , **18** , **24** , **30**

Complete the multiplication equation that represents the final number in your count-by.

$6 \times$ **5** $=$ **30**

Complete the division equation that represents your count-by.

30 $\div 6 =$ **5**

3. Count by six to fill in the blanks below.

6, **12** , **18** **24** , **30** , **36**

Complete the multiplication equation that represents the final number in your count-by.

$6 \times$ **6** $=$ **36**

Complete the division equation that represents your count-by.

36 $\div 6 =$ **6**

4. Count by 6 to solve 48 ÷ 6. Show your work below.

1   2   3   4   5   6   7   8

6, 12, 18, 24, 30, 36, 42, 48

Since 6×8=48, we know 48÷6=8.

COMMON CORE

Lesson 4:   Count by units of 6 to multiply and divide using number bonds to decompose.

Date: 7/31/13

engageny   3.B.13

Multiply.

6 x 1 = __6__   6 x 2 = __12__   6 x 3 = __18__   6 x 4 = __24__

6 x 5 = __30__   6 x 1 = __6__   6 x 2 = __12__   6 x 1 = __6__

6 x 3 = __18__   6 x 1 = __6__   6 x 4 = __24__   6 x 1 = __6__

6 x 5 = __30__   6 x 1 = __6__   6 x 2 = __12__   6 x 3 = __18__

6 x 2 = __12__   6 x 4 = __24__   6 x 2 = __12__   6 x 5 = __30__

6 x 2 = __12__   6 x 1 = __6__   6 x 2 = __12__   6 x 3 = __18__

6 x 1 = __6__   6 x 3 = __18__   6 x 2 = __12__   6 x 3 = __18__

6 x 4 = __24__   6 x 3 = __18__   6 x 5 = __30__   6 x 3 = __18__

6 x 4 = __24__   6 x 1 = __6__   6 x 4 = __24__   6 x 2 = __12__

6 x 4 = __24__   6 x 3 = __18__   6 x 4 = __24__   6 x 5 = __30__

6 x 4 = __24__   6 x 5 = __30__   6 x 1 = __6__   6 x 5 = __30__

6 x 2 = __12__   6 x 5 = __30__   6 x 3 = __18__   6 x 5 = __30__

6 x 4 = __24__   6 x 2 = __12__   6 x 4 = __24__   6 x 3 = __18__

6 x 5 = __30__   6 x 3 = __18__   6 x 2 = __12__   6 x 4 = __24__

6 x 3 = __18__   6 x 5 = __30__   6 x 2 = __12__   6 x 4 = __24__

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Lesson 5: Count by units of 7 to multiply and divide using number bonds to decompose.

Date: 7/31/13

3.B.19

Name _____   Date _____

1. Use number bonds to help you skip-count by seven by making ten or adding to the ones.

(a) 7 + 7 = __10__ + __4__ = 14
     / \
    3   4

(b) 14 + 7 = 20 + 1 = 21
      / \
     6   1

(c) 21 + 7 = 20 + 8 = 28
    / \
   20   1

(d) 28 + 7 = 30 + 5 = 35
      / \
     2   5

(e) 35 + 7 = 40 + 2 = 42
      / \
     5   2

(f) 42 + 7 = 40 + 9 = 49   ∧   40   2

(g) 49 + 7 = 50 + 6 = 56
      ∧
     1   6

(h) 56 + 7 = 60 + 3 = 63
     ∧
    4   3

2. Skip-count by seven to fill in the blanks. Then use the multiplication equation to write the related division fact directly to the right.

70

63

56

49

42

35

28

21

14

7

$7 \times 10 = 70$

$7 \times 9 = 63$

$7 \times 8 = 56$

$7 \times 7 = 49$

$7 \times 6 = 42$

$7 \times 5 = 35$

$7 \times 4 = 28$

$7 \times 3 = 21$

$7 \times 2 = 14$

$7 \times 1 = 7$
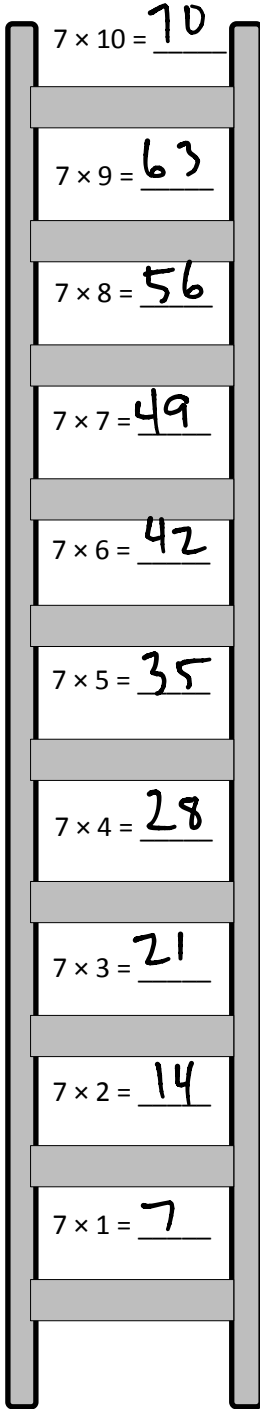
$70 \div 7 = 10$

$63 \div 7 = 9$

$56 \div 7 = 8$

$49 \div 7 = 7$

$42 \div 7 = 6$

$35 \div 7 = 5$

$28 \div 7 = 4$

$21 \div 7 = 3$

$14 \div 7 = 2$

$7 \div 7 = 1$

Multiply.

6 x 1 = **6**   6 x 2 = **12**   6 x 3 = **18**   6 x 4 = **24**

6 x 5 = **30**   6 x 6 = **36**   6 x 7 = **42**   6 x 8 = **48**

6 x 9 = **54**   6 x 10 = **60**   6 x 5 = **30**   6 x 6 = **36**

6 x 5 = **30**   6 x 7 = **42**   6 x 5 = **30**   6 x 8 = **48**

6 x 5 = **30**   6 x 9 = **54**   6 x 5 = **30**   6 x 10 = **60**

6 x 6 = **36**   6 x 5 = **30**   6 x 6 = **36**   6 x 7 = **42**

6 x 6 = **36**   6 x 8 = **48**   6 x 6 = **36**   6 x 9 = **54**

6 x 6 = **36**   6 x 7 = **42**   6 x 6 = **36**   6 x 7 = **42**

6 x 8 = **48**   6 x 7 = **42**   6 x 9 = **54**   6 x 7 = **42**

6 x 8 = **48**   6 x 6 = **36**   6 x 8 = **48**   6 x 7 = **42**

6 x 8 = **48**   6 x 9 = **54**   6 x 9 = **54**   6 x 6 = **36**

6 x 9 = **54**   6 x 7 = **42**   6 x 9 = **54**   6 x 8 = **48**

6 x 9 = **54**   6 x 8 = **48**   6 x 6 = **36**   6 x 9 = **54**

6 x 7 = **42**   6 x 9 = **54**   6 x 6 = **36**   6 x 8 = **48**

6 x 9 = **54**   6 x 7 = **42**   6 x 6 = **36**   6 x 8 = **48**

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Lesson 6: Use the distributive property as a strategy to multiply and divide using units of 6 and 7.
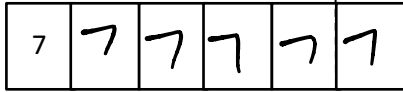**Date:** 7/31/13

engage^{ny} 3.B.31

Name:_____   Date:_____

1. Label the tape diagrams. Then fill in the blanks below to make the statements true.
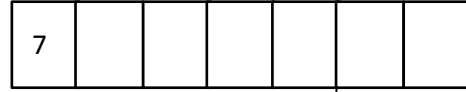
a. **6 × 7 =** 42

$(5 × 7) =$ 35 $($ 1 $× 7) =$ 7

| 7 | 7 | 7 | 7 | 7 | 7 |

(6 × 7) = (5 + 1) × 7
= (5 × 7) + (1 × 7)
= 35 + 7
= 42

b. **7 × 7 =** 49

$(5 × 7) =$ 35 $($ 2 $× 7) =$ 14

| 7 | | | | | | |

(7 × 7) = (5 + 2) × 7
= (5 × 7) + (2 × 7)
= 35 + 14
= 49

c. **8 × 7 =** 56

$(5 × 7) =$ 35 $($ 3 $× 7) =$ 21

| 7 | | | | | | | |

8 × 7 = (5 + 3) × 7
= (5 × 7) + (3 × 7)
= 35 + 21
= 56

d. **9 × 7 =** 63

$(5 × 7) =$ 35 $($ 4 $× 7) =$ 28

| 7 | | | | | | | | |

9 × 7 = (5 + 4) × 7
= (5 × 7) + (4 × 7)
= 35 + 28
= 63

2. Break apart 54 to solve $54 \div 6$.

$54 \div 6$
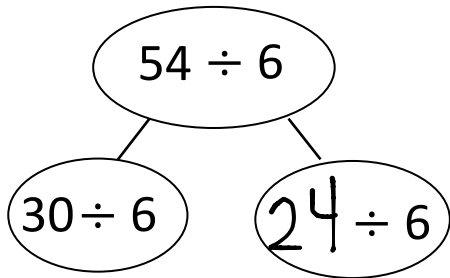
$30 \div 6$ $24 \div 6$

$54 \div 6$ = $(30 \div 6) + (\underline{24} \div 6)$

    = $5 + \underline{4}$

    = $\underline{9}$

3. Break apart 56 to solve $56 \div 7$.

$56 \div 7$
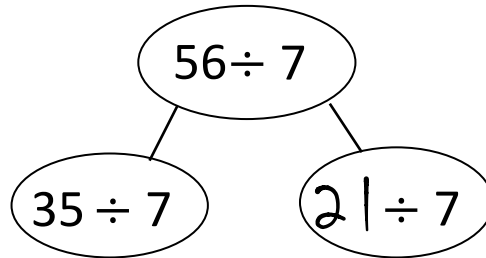
$35 \div 7$ $21 \div 7$

$56 \div 7$ = $(\underline{35} \div \underline{7}) + (\underline{21} \div \underline{7})$

    = $5 + \underline{3}$

    = $\underline{8}$

4. Forty-two third grade students sit in 6 equal rows in the auditorium. How many students sit in each row? Show your thinking.
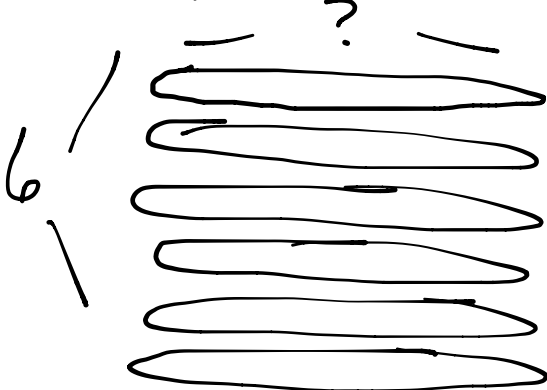
$42 \div 6 = \underline{7}$

$6 \times 5 = 30$
$6 \times 6 = 36$
$6 \times 7 = 42$

There are 7 students in each row.

5. Ronaldo solves 7×6 by thinking of it as $(5 \times 7) + 7$. Is he correct? Explain Ronaldo's strategy.

Ronaldo is correct.

7×6 can be thought of as 6 sevens.

6 sevens = 5 sevens + 1 seven
       = $5 \times 7 + 7$

COMMON CORE   **Lesson 6:**   Use the distributive property as a strategy to multiply and divide using units of 6 and 7.   **engage**^ny   **3.B.36**

Date: 7/31/13

Multiply.

7 x 1 = 7   7 x 2 = 14   7 x 3 = 21   7 x 4 = 28

7 x 5 = 35   7 x 1 = 7   7 x 2 = 14   7 x 1 = 7

7 x 3 = 21   7 x 1 = 7   7 x 4 = 28   7 x 1 = 7

7 x 5 = 35   7 x 1 = 7   7 x 2 = 14   7 x 3 = 21

7 x 2 = 14   7 x 4 = 28   7 x 2 = 14   7 x 5 = 35

7 x 2 = 14   7 x 1 = 7   7 x 2 = 14   7 x 3 = 21

7 x 1 = 7   7 x 3 = 21   7 x 2 = 14   7 x 3 = 21

7 x 4 = 28   7 x 3 = 21   7 x 5 = 35   7 x 3 = 21

7 x 4 = 28   7 x 1 = 7   7 x 4 = 28   7 x 2 = 14

7 x 4 = 28   7 x 3 = 21   7 x 4 = 28   7 x 5 = 35

7 x 4 = 28   7 x 5 = 35   7 x 1 = 7   7 x 5 = 35

7 x 2 = 14   7 x 5 = 35   7 x 3 = 21   7 x 5 = 35

7 x 4 = 28   7 x 2 = 14   7 x 4 = 28   7 x 3 = 21

7 x 5 = 35   7 x 3 = 21   7 x 2 = 14   7 x 4 = 28

7 x 3 = 21   7 x 5 = 35   7 x 2 = 14   7 x 4 = 28

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3.B.41

Name _____   Date _____

1. Match the words on the arrow to the correct equation on the target.

7 times a number equals 42

63 divided by a number equals 9

**36 divided by a number equals 6**

A number times 7 equals 21

$n \times 7 = 21$

$7 \times n = 42$

$63 \div n = 9$

$36 \div n = 6$

Lesson 7:   Interpret the unknown in multiplication and division to model and
solve problems using units of 6 and 7.

Date: 7/31/13

2. Ari sells 6 boxes of pens at the school store.

   a. Each box of pens sells for $7. Draw a tape diagram and label the total amount of money he makes as *m*. Write an equation and solve for *m*.
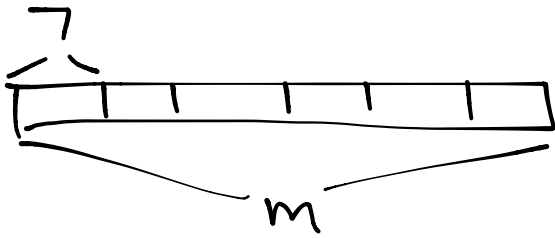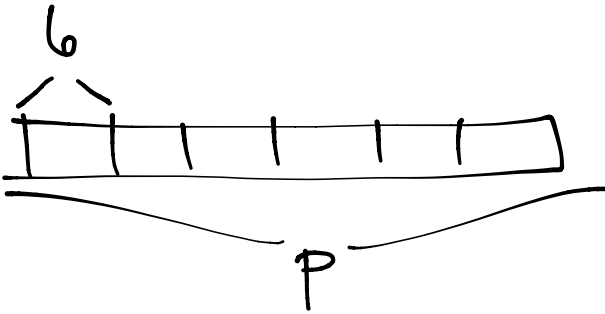
   $$6 \times 7 = m$$
   $$m = \$42$$

   Ari makes $42.

   b. Each box contains 6 pens. Draw a tape diagram and label the total number of pens as *p*. Write an equation and solve for *p*.
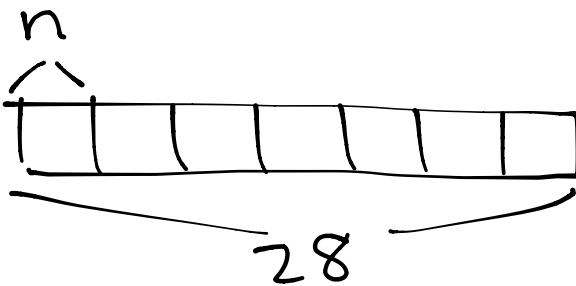
   $$6 \times 6 = p$$
   $$p = 36$$

   Ari sells 36 pens.

3. Mr. Lucas divides 28 students into 7 equal groups for a project. Draw a tape diagram and label the number of students in each group as *n*. Write an equation and solve for *n*.

   $$28 \div 7 = n$$
   $$n = 4$$

   There are 4 students in each group.

COMMON CORE

Lesson 7:   Interpret the unknown in multiplication and division to model and solve problems using units of 6 and 7.

Date: 7/31/13

engage^ny   3.B.46

Multiply.

7 x 1 = __7__   7 x 2 = __14__   7 x 3 = __21__   7 x 4 = __28__

7 x 5 = __35__   7 x 6 = __42__   7 x 7 = __49__   7 x 8 = __56__

7 x 9 = __63__   7 x 10 = __70__   7 x 5 = __35__   7 x 6 = __42__

7 x 5 = __35__   7 x 7 = __49__   7 x 5 = __35__   7 x 8 = __56__

7 x 5 = __35__   7 x 9 = __63__   7 x 5 = __35__   7 x 10 = __70__

7 x 6 = __42__   7 x 5 = __35__   7 x 6 = __42__   7 x 7 = __49__

7 x 6 = __42__   7 x 8 = __56__   7 x 6 = __42__   7 x 9 = __63__

7 x 6 = __42__   7 x 7 = __49__   7 x 6 = __42__   7 x 7 = __49__

7 x 8 = __56__   7 x 7 = __49__   7 x 9 = __63__   7 x 7 = __49__

7 x 8 = __56__   7 x 6 = __42__   7 x 8 = __56__   7 x 7 = __49__

7 x 8 = __56__   7 x 9 = __63__   7 x 9 = __63__   7 x 6 = __42__

7 x 9 = __63__   7 x 7 = __49__   7 x 9 = __63__   7 x 8 = __56__

7 x 9 = __63__   7 x 8 = __56__   7 x 6 = __42__   7 x 9 = __63__

7 x 7 = __49__   7 x 9 = __63__   7 x 6 = __42__   7 x 8 = __56__

7 x 9 = __63__   7 x 7 = __49__   7 x 6 = __42__   7 x 8 = __56__

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Name _____   Date _____

1. Solve.

   a. $9 - (6 + 3) =$ __0__

   (9)

   b. $(9 - 6) + 3 =$ __6__

   (3)

   c.   __8__ $= 14 - (4 + 2)$

   (6)

   d.   __2__ $= (14 - 4) + 2$

   (10)

   e.   __42__ $= (4 + 3) \times 6$

   (7)

   f.   __22__ $= 4 + (3 \times 6)$

   (18)

   g. $(18 \div 3) + 6 =$ __12__

   (6)

   h. $18 \div (3 + 6) =$ __2__

   (9)

2. Use parentheses to make the equations true.

   a. $14 - (8 + 2) = 4$

   (10)

   b. $(14 - 8) + 2 = 8$

   (6)

   c. $2 + (4 \times 7) = 30$

   (28)

   d. $(2 + 4) \times 7 = 42$

   (6)

   g. $12 = (18 \div 3) \times 2$

   (6)

   h. $3 = 18 \div (3 \times 2)$

   (6)

   e. $5 = 50 \div (5 \times 2)$

   (10)

   f. $20 = (50 \div 5) \times 2$

   (10)

COMMON CORE

Lesson 8:   Understand the function of parenthesis and apply to solving problems.
Date: 7/31/13

engage^ny

3.C.12

3. Determine if the equation is true or false.

a. $(15 - 3) \div 2 = 6$	Example: True
b. $(10 - 7) \times 6 = 18$	True
c. $(35 - 7) \div 4 = 8$	False
d. $28 = 4 \times (20 - 13)$	True
e. $35 = (22 - 8) \div 5$	False

4. Jerome finds that $(3 \times 6) \div 2$ and $18 \div 2$ are equal. Explain why this is true.

$(3 \times 6) \div 2$
$= 18 \div 2$
$= 9$

$18 \div 2 = 9$

It is true because 3×6 and 18 are equal. Both expressions have "divide by 2".

5. Place parentheses in the equation below so that you solve by finding the difference between 28 and 3. Find the answer.

$(4 \times 7) - 3$
$= 28 - 3$
$= 25$

$(4 \times 7) - 3 =$

6. Johnny says that the answer to $2 \times 6 \div 3$ is 4 no matter where the parentheses are. Do you agree? Place parentheses around different numbers to show his thinking.

$(2 \times 6) \div 3$
$= 12 \div 3$
$= 4$

$2 \times (6 \div 3)$
$= 2 \times 2$
$= 4$

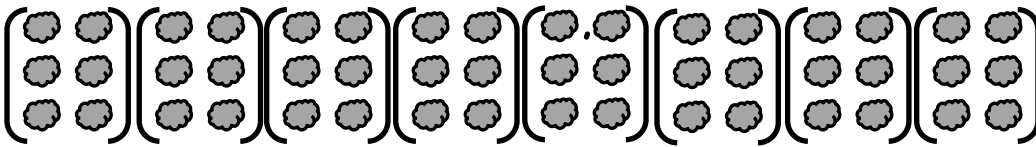There are two options for placing the parentheses on this expression and both have 4 as the answer.

Lesson 8: Understand the function of parenthesis and apply to solving problems. Date: 7/31/13

engage^ny   3.C.13

Name _____   Date _____

1. Use the array to complete the equation.

a. 3 × 16 = _____

b. (3 × **2**) × 8

= **6** × **8**

= **48**
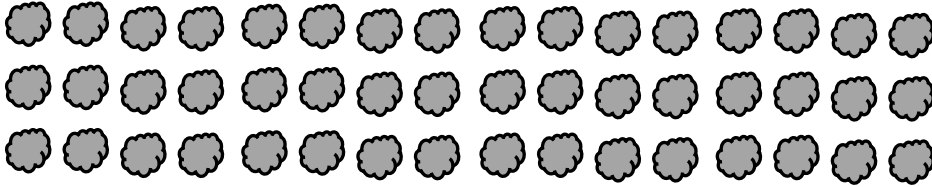
c. 4 × 18 = _____
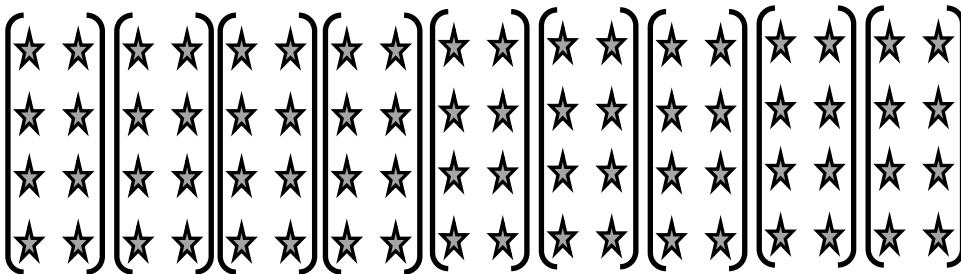
d. (4 × **2**) × 9

= **8** × **9**

= **72**

2. Place ( ) in the equations to simplify and solve.

$12 \times 4 = (6 \times 2) \times 4$
$= 6 \times (2 \times 4)$ $\bigg\} = \underline{\quad 48 \quad}$
$= 6 \times \underline{\;8\;}$

$3 \times 14 = 3 \times (2 \times 7)$
$= (3 \times 2) \times 7$ $\bigg\} = \underline{42}$
$= \underline{6} \times 7$

$3 \times 12 = 3 \times (3 \times 4)$
$= (3 \times 3) \times 4$ $\bigg\} = \underline{36}$
$= \underline{9} \times 4$

3. Solve. Then match the related facts.

a. $20 \times 2 = \underline{\;40\;} =$ $6 \times (5 \times 2)$

b. $30 \times 2 = \underline{60} =$ $8 \times (5 \times 2)$

c. $35 \times 2 = \underline{70} =$ $4 \times (5 \times 2)$

d. $40 \times 2 = \underline{80} =$ $7 \times (5 \times 2)$

Name _____   Date _____

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

    a) **8 × 7 = 7 × 8 =** $\underline{56}$

    (7 × 5) = $\underline{35}$; (7 × $\underline{3}$) = $\underline{21}$
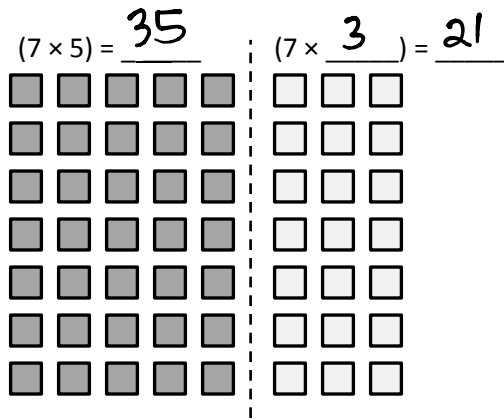
    > **8 × 7** = 7 × (5 + $\underline{3}$)
    >   = (7 × 5) + (7 × $\underline{3}$)
    >   = $\underline{35}$ + $\underline{21}$
    >   = $\underline{56}$

2. Break apart and distribute to solve
    72 ÷ 8.
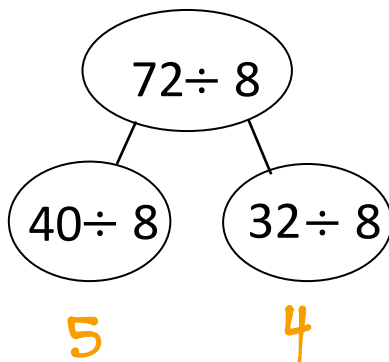
    72 ÷ 8 = (40 ÷ 8) + ($\underline{32}$ ÷ 8)

    = 5 + $\underline{4}$

    = $\underline{9}$

3. Count by 8. Then match each multiplication problem with its value.

__8__ , 16 , 24 , 32 , 40 , 48 , 56 , 64 , 72 , 80 ,

8 × 9

8 × 5

8 × 8

8 × 6

8 × 7
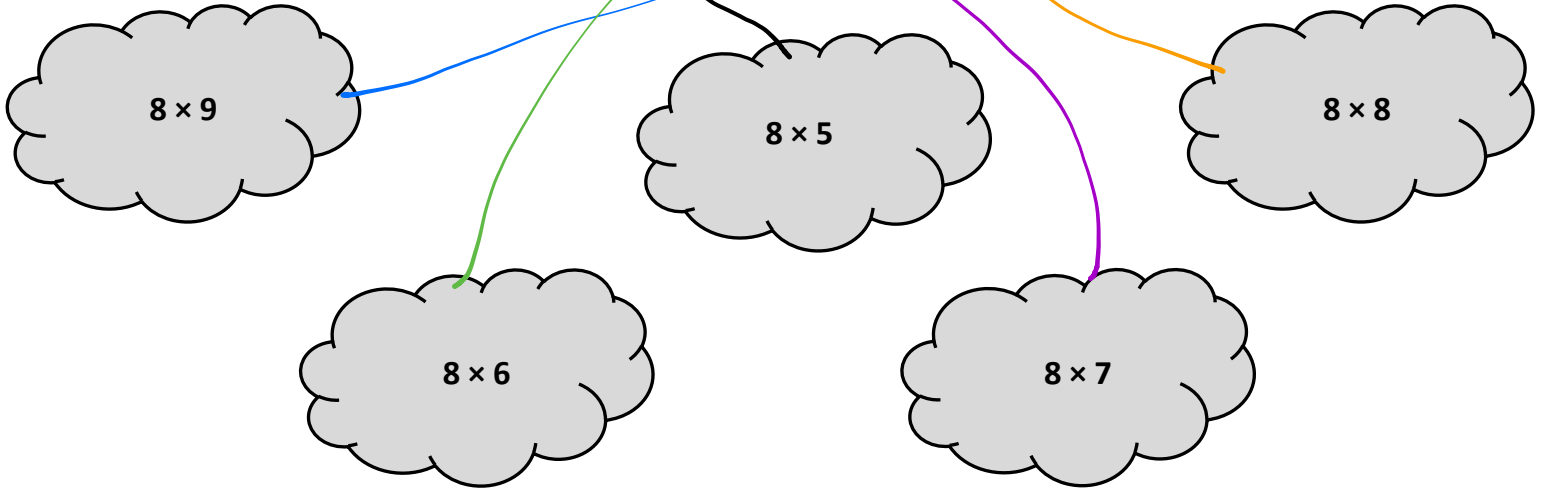
4. Divide.

16 ÷ 8 = 2

40 ÷ 8 = 5

32 ÷ 8 = 4

48 ÷ 8 = 6

56 ÷ 8 = 7

72 ÷ 8 = 9

COMMON CORE | Lesson 10:   Use the distributive property as a strategy to multiply and divide.
Date: 7/31/13

engage^{ny}   3.C.35

Multiply.

8 x 1 = __8__   8 x 2 = __16__   8 x 3 = __24__   8 x 4 = __32__

8 x 5 = __40__   8 x 1 = __8__   8 x 2 = __16__   8 x 1 = __8__

8 x 3 = __24__   8 x 1 = __8__   8 x 4 = __32__   8 x 1 = __8__

8 x 5 = __40__   8 x 1 = __8__   8 x 2 = __16__   8 x 3 = __24__

8 x 2 = __16__   8 x 4 = __32__   8 x 2 = __16__   8 x 5 = __40__

8 x 2 = __16__   8 x 1 = __8__   8 x 2 = __16__   8 x 3 = __24__

8 x 1 = __8__   8 x 3 = __24__   8 x 2 = __16__   8 x 3 = __24__

8 x 4 = __32__   8 x 3 = __24__   8 x 5 = __40__   8 x 3 = __24__

8 x 4 = __32__   8 x 1 = __8__   8 x 4 = __32__   8 x 2 = __16__

8 x 4 = __32__   8 x 3 = __24__   8 x 4 = __32__   8 x 5 = __40__

8 x 4 = __32__   8 x 5 = __40__   8 x 1 = __8__   8 x 5 = __40__

8 x 2 = __16__   8 x 5 = __40__   8 x 3 = __24__   8 x 5 = __40__

8 x 4 = __32__   8 x 2 = __16__   8 x 4 = __32__   8 x 3 = __24__

8 x 5 = __40__   8 x 3 = __24__   8 x 2 = __16__   8 x 4 = __32__

8 x 3 = __24__   8 x 5 = __40__   8 x 2 = __16__   8 x 4 = __32__

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COMMON CORE

Lesson 11: Interpret the unknown in multiplication and division to model and solve problems.

Date: 7/31/13

engageny   3.C.41

Name _____   Date _____

1. Jenny bakes 10 cookies. She puts 7 chocolate chips on each cookie. Draw a tape diagram and label the total of amount of chocolate chips as *c*. Write an equation and solve for *c*.
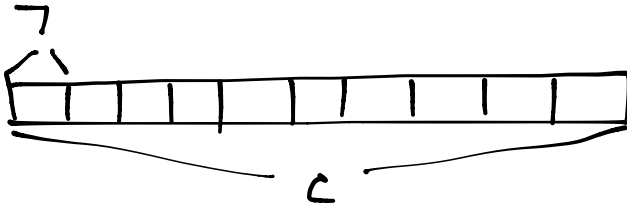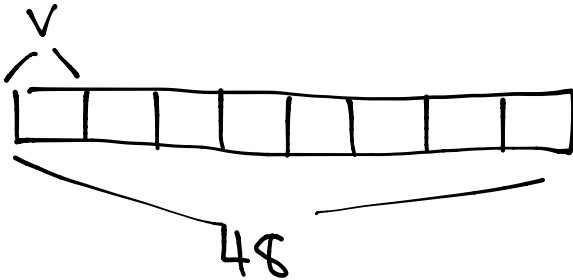
$$10 \times 7 = c$$
$$c = 70 \text{ chocolate chips}$$

Jenny will use 70 chocolate chips.

2. Mr. Lopez arranges 48 dry erase markers into 8 equal groups for his math stations. Draw a tape diagram and label the number of dry erase markers in each group as *v*. Write an equation and solve for *v*.

$$48 \div 8 = v$$
$$v = 6$$

There will be 6 dry erase markers in each group.

3. There are 35 computers in the lab. Five students each turn off an equal number of computers. How many computers does each student turn off? Label the unknown as *m*, then solve.
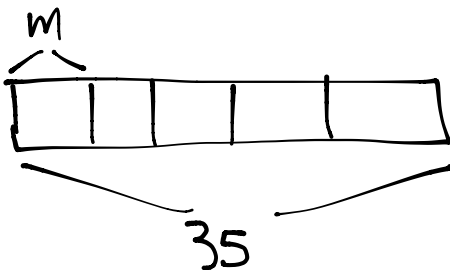
$$35 \div 5 = m$$
$$m = 7$$

Each student turns off 7 computers.

COMMON CORE | Lesson 11: | Interpret the unknown in multiplication and division to model and solve problems.
Date: | 7/31/13
engage^ny 3.C.45

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4. There are 9 bins of books. Each bin has 6 comic books. How many comic books are there altogether?
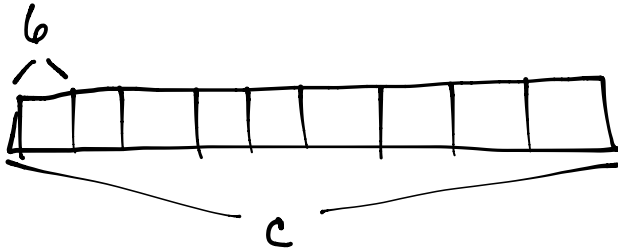
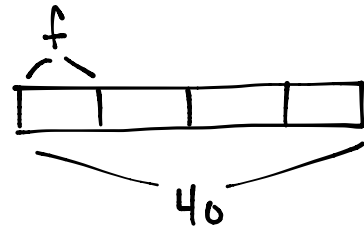$9 \times 6 = C$

$C = 54$

There are 54 comic books altogether.

---

5. There are 8 trail mix bags in one box. Clarissa buys 5 boxes. She gives an equal number of bags of trail mix to 4 friends. How many bags of trail mix does each friend receive?
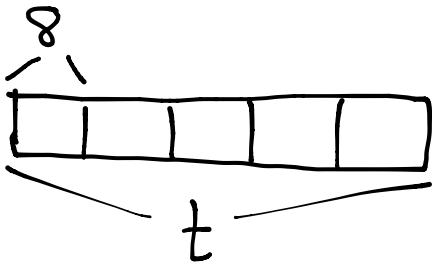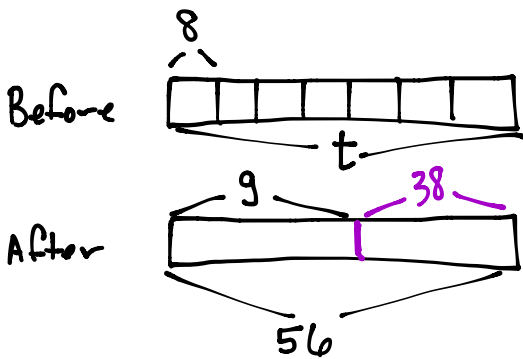
$5 \times 8 = t$

$t = 40$

$40 \div 4 = f$

$f = 10$

Each friend gets 10 bags of trail mix.

---

6. Leo earns $8 a week for doing chores. After 7 weeks, he buys a gift and has $38 left. How much does he spend on the gift?

Before

After

$7 \times 8 = t$

$t = \$56$

Leo earned $56 in 7 weeks.

$56 - 38 = g$

$g = 18$

Leo spent $18 on the gift.

Multiply.

8 x 1 = __8__   8 x 2 = __16__   8 x 3 = __24__   8 x 4 = __32__

8 x 5 = __40__   8 x 6 = __48__   8 x 7 = __56__   8 x 8 = __64__

8 x 9 = __72__   8 x 10 = __80__   8 x 5 = __40__   8 x 6 = __48__

8 x 5 = __40__   8 x 7 = __56__   8 x 5 = __40__   8 x 8 = __64__

8 x 5 = __40__   8 x 9 = __72__   8 x 5 = __40__   8 x 10 = __80__

8 x 6 = __48__   8 x 5 = __40__   8 x 6 = __48__   8 x 7 = __56__

8 x 6 = __48__   8 x 8 = __64__   8 x 6 = __48__   8 x 9 = __72__

8 x 6 = __48__   8 x 7 = __56__   8 x 6 = __48__   8 x 7 = __56__

8 x 8 = __64__   8 x 7 = __56__   8 x 9 = __72__   8 x 7 = __56__

8 x 8 = __64__   8 x 6 = __48__   8 x 8 = __64__   8 x 7 = __56__

8 x 8 = __64__   8 x 9 = __72__   8 x 9 = __72__   8 x 6 = __48__

8 x 9 = __72__   8 x 7 = __56__   8 x 9 = __72__   8 x 8 = __64__

8 x 9 = __72__   8 x 8 = __64__   8 x 6 = __48__   8 x 9 = __72__

8 x 7 = __56__   8 x 9 = __72__   8 x 6 = __48__   8 x 8 = __64__

8 x 9 = __72__   8 x 7 = __56__   8 x 6 = __48__   8 x 8 = __64__

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engage^{ny}

COMMON CORE

Name _____ Date _____

1. Find the value of each row. Then add the rows to find the total.

a. Each [cube] has a value of 6.

9 × 6 = **54**

5 × 6 = 30

4 × 6 = **24**

9 × 6 = (5 + 4) × 6

= (5 × 6) + (4 × 6)

= 30 + **24**

= **54**

b. Each [cube] has a value of 7.

9 × 7 = _____

5 × 7 = **35**

4 × 7 = **28**

9 × 7 = (5 + **4**) × 7

= (5 × 7) + (**4** × 7)

= 35 + **28**

= **63**
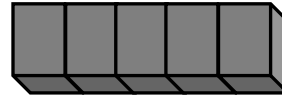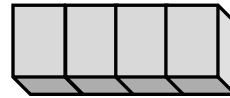
c. Each [cube] has a value of 8.

9 × 8 = **72**

5 × 8 = **40**

4 × 8 = **32**

9 × 8 = (5 + **4**) × 8

= (5 × 8) + (**4** × **8**)

= 40 + **32**

= **72**

d. Each [cube] has a value of 9.

9 × 9 = **81**

5 × 9 = **45**

4 × 9 = **36**

9 × 9 = (5 + **4**) × 9

= (5 × 9) + (**4** × **9**)
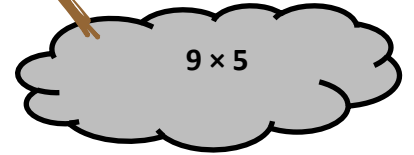
= 45 + **36**

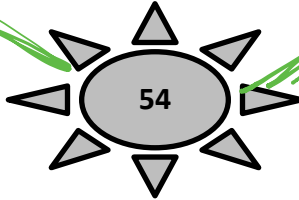= **81**
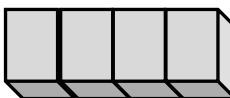
2. Match.

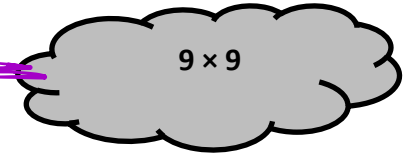a. **9 fives** = 10 fives − 1 five

    = 50 − 5
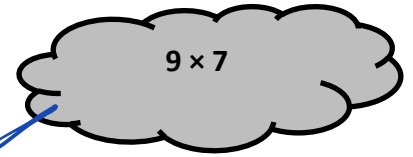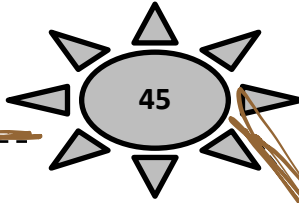
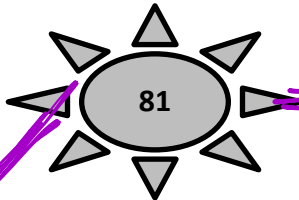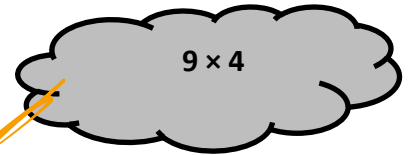b. **9 sixes** = 10 sixes − 1 six

    = _60_ − 6

    = 54
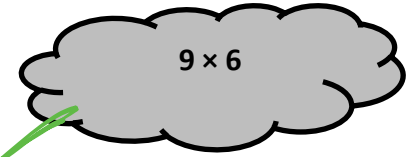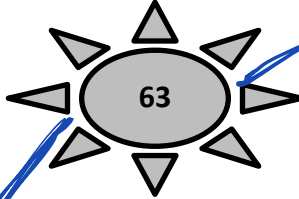
c. **9 sevens** = 10 sevens − 1 seven

    = _70_ − 7

    = 63

d. **9 eights** = 10 eights − 1 eight

    = _80_ − 8

    = 72

e. **9 nines** = 10 nines − 1 nine

    = _90_ − _9_

    = 81
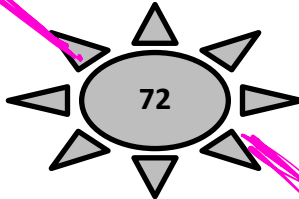
f. **9 fours** = 10 fours − 1 four

    = _40_ − _4_

    = 36

45   63   54   81   72   36

9 × 7   9 × 6   9 × 5   9 × 9   9 × 4   9 × 8
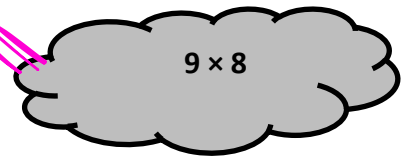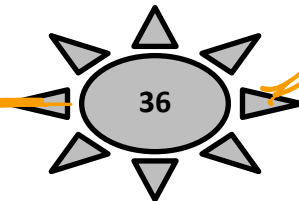
Name _____ Date _____

1. a. Skip-count by nines down from 90.

   __90__ , _81_ , _72_ , _63_ , _54_ , _45_ , _36_ , _27_ , _18_ , _9_

   b. Look at the **tens** place in the count-by. What is the pattern?

   The digit in the tens place goes down by one each time.

   c. Look at the ones place in the count-by. What is the pattern?

   The digit in the ones place goes up by one each time.

2. Each number sentence contains a letter representing the unknown. Find the value of each unknown.

   $a \times 9 = 18$ $a = 2$

   $m \div 9 = 3$ $m = 27$

   $e \times 9 = 45$ $e = 5$

   $f \div 9 = 4$ $f = 36$

   $9 \times d = 81$ $d = 9$

   $w \div 9 = 6$ $w = 54$

   $9 \times s = 90$ $s = 10$

   $k \div 9 = 8$ $k = 72$

3. Solve.

a. What is 10 more than 0? __10__

   What is 1 less? __9__

   1 × 9 = __9__

b. What is 10 more than 9? __19__

   What is 1 less? __18__

   2 × 9 = __18__

c. What is 10 more than 18? __28__

   What is 1 less? __27__

   3 × 9 = __27__

d. 10 more than 27? __37__

   What is 1 less? __36__

   4 × 9 = __36__

e. What is 10 more than 36? __46__

   What is 1 less? __45__

   5 × 9 = __45__

f. What is 10 more than 45? __55__

   What is 1 less? __54__

   6 × 9 = __54__

g. What is 10 more than 54? __64__

   What is 1 less? __63__

   7 × 9 = __63__

h. What is 10 more than 63? __73__

   What is 1 less? __72__

   8 × 9 = __72__

i. What is 10 more than 72? __82__

   What is 1 less? __81__

   9 × 9 = __81__

j. What is 10 more than 81? __91__

   What is 1 less? __90__

   10 × 9 = __90__

4. Explain the pattern in Problem 2 and use the pattern to find the next 3 facts.

   11 × 9 = __99__   12 × 9 = __108__   13 × 9 = __117__

   10x9 =90   +10 −1   +10 −1   +10 − 1

Multiply.

9 x 1 = __9__   9 x 2 = __18__   9 x 3 = __27__   9 x 4 = __36__

9 x 5 = __45__   9 x 1 = __9__   9 x 2 = __18__   9 x 1 = __9__

9 x 3 = __27__   9 x 1 = __9__   9 x 4 = __36__   9 x 1 = __9__

9 x 5 = __45__   9 x 1 = __9__   9 x 2 = __18__   9 x 3 = __27__

9 x 2 = __18__   9 x 4 = __36__   9 x 2 = __18__   9 x 5 = __45__

9 x 2 = __18__   9 x 1 = __9__   9 x 2 = __18__   9 x 3 = __27__

9 x 1 = __9__   9 x 3 = __27__   9 x 2 = __18__   9 x 3 = __27__

9 x 4 = __36__   9 x 3 = __27__   9 x 5 = __45__   9 x 3 = __27__

9 x 4 = __36__   9 x 1 = __9__   9 x 4 = __36__   9 x 2 = __18__

9 x 4 = __36__   9 x 3 = __27__   9 x 4 = __36__   9 x 5 = __45__

9 x 4 = __36__   9 x 5 = __45__   9 x 1 = __9__   9 x 5 = __45__

9 x 2 = __18__   9 x 5 = __45__   9 x 3 = __27__   9 x 5 = __45__

9 x 4 = __36__   9 x 2 = __18__   9 x 4 = __36__   9 x 3 = __27__

9 x 5 = __45__   9 x 3 = __27__   9 x 2 = __18__   9 x 4 = __36__

9 x 3 = __27__   9 x 5 = __45__   9 x 2 = __18__   9 x 4 = __36__

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Name _____   Date _____

1. Multiply. Then add the digits in each product.

10 × 9 = **90**	__9__ + __0__ = __9__
9 × 9 = **81**	__8__ + __1__ = __9__
8 × 9 = 72	__7__ + __2__ = __9__
7 × 9 = 63	__6__ + __3__ = __9__
6 × 9 = 54	__5__ + __4__ = __9__
5 × 9 = 45	__4__ + __5__ = __9__
4 × 9 = 36	__3__ + __6__ = __9__
3 × 9 = 27	__2__ + __7__ = __9__
2 × 9 = 18	__1__ + __8__ = __9__
1 × 9 = 9	__0__ + __9__ = __9__

What pattern did you notice in the table? How can this strategy help you check your work with nines facts?

For each product in the 9 times tables, the sum of the digits in the product is always 9.

2. Thomas calculates 9 × 7 by thinking about it as 70 − 7 = 63. Explain Thomas' strategy.
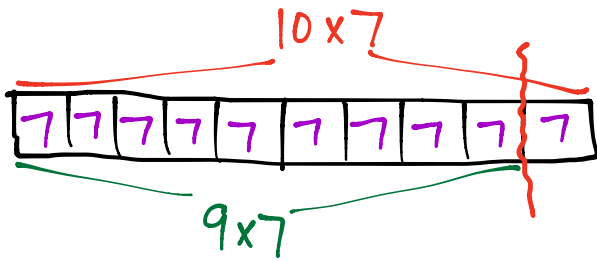
10 sevens is 70, but Thomas want 9 sevens so he needs to subtract 7 from 70 to get $9 \times 7 = 63$.

3. Alexia figures out the answer to 6 × 9 by lowering the thumb on her right hand, shown below. What is the answer? Explain Alexia's strategy.

There are 5 fingers still standing to the left of the lowered finger. Think "50".

There are 4 fingers still standing to the right of the lowered finger. Think "4".

$$50 + 4 = 54$$

4. Travis writes 72 = 9 × 8. Is he correct? Explain at least 2 strategies Travis can use to help him check his work.

$$9 \times 8 = 10 \times 8 - 8$$
$$= 80 - 8$$
$$= 72$$

$$9 \times 8 = (5 + 4) \times 8$$
$$= (5 \times 8) + (4 \times 8)$$
$$= 40 + 32$$
$$= 72$$

COMMON CORE

Lesson 14:   Identify and use arithmetic patterns to multiply.
Date: 7/31/13

engage^{ny}   **3.D.39**

Multiply.

9 x 1 = __9__   9 x 2 = __18__   9 x 3 = __27__   9 x 4 = __36__

9 x 5 = __45__   9 x 6 = __54__   9 x 7 = __63__   9 x 8 = __72__

9 x 9 = __81__   9 x 10 = __90__   9 x 5 = __45__   9 x 6 = __54__

9 x 5 = __45__   9 x 7 = __63__   9 x 5 = __45__   9 x 8 = __72__

9 x 5 = __45__   9 x 9 = __81__   9 x 5 = __45__   9 x 10 = __90__

9 x 6 = __54__   9 x 5 = __45__   9 x 6 = __54__   9 x 7 = __63__

9 x 6 = __54__   9 x 8 = __72__   9 x 6 = __54__   9 x 9 = __81__

9 x 6 = __54__   9 x 7 = __63__   9 x 6 = __54__   9 x 7 = __63__

9 x 8 = __72__   9 x 7 = __63__   9 x 9 = __81__   9 x 7 = __63__

9 x 8 = __72__   9 x 6 = __54__   9 x 8 = __72__   9 x 7 = __63__

9 x 8 = __72__   9 x 9 = __81__   9 x 9 = __81__   9 x 6 = __54__

9 x 9 = __81__   9 x 7 = __63__   9 x 9 = __81__   9 x 8 = __72__

9 x 9 = __81__   9 x 8 = __72__   9 x 6 = __54__   9 x 9 = __81__

9 x 7 = __63__   9 x 9 = __81__   9 x 6 = __54__   9 x 8 = __72__

9 x 9 = __81__   9 x 7 = __63__   9 x 6 = __54__   9 x 8 = __72__

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Name _____ Date _____

1. The store clerk equally divides 36 apples between 9 baskets. Draw a tape diagram and label the number of apples in each basket as a. Write an equation and solve for a.

a
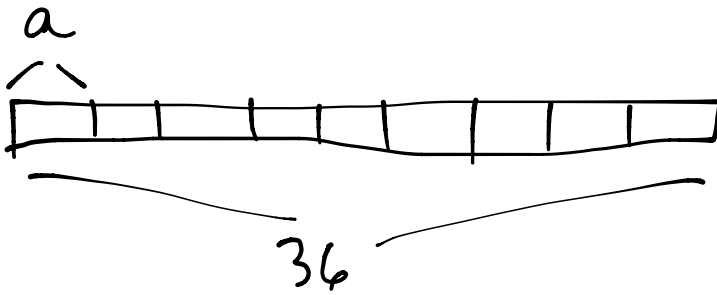
$$36 \div 9 = a$$
$$a = 4$$

There are 4 apples in each basket.

36

2. Elijah gives each of his friends a pack of 9 almonds. He gives away a total of 45 almonds. How many packs of almonds did he give away? Model using a letter to represent the unknown, then solve.

f friends

9

· · · · · · · · ·

45
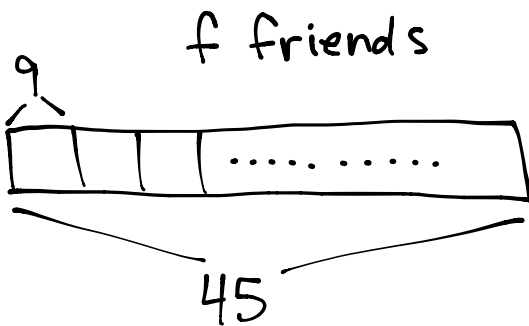
$$45 \div 9 = f$$
$$f = 5$$

Elijah gave away packs of almonds to 5 friends.

3. Denice buys 7 movies. Each movie costs $9. What is the total cost of 7 movies? Use a letter to represent the unknown. Solve.

$$7 \times 9 = m$$
$$m = \$63$$

Denice spent $63 on the movies.

9

m

4. Mr. Doyle shares 1 roll of bulletin board paper equally with 8 teachers. The total length of the roll is 72 meters. How much bulletin board paper does each teacher get?

$72 \div 8 = p$

$p = 9$

Each teacher gets 9 meters of bulletin board paper.

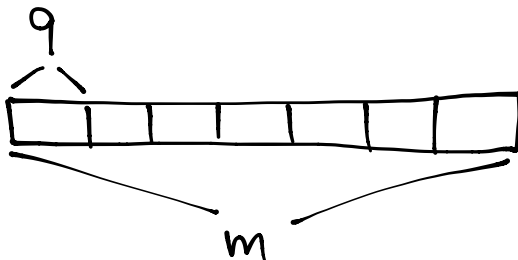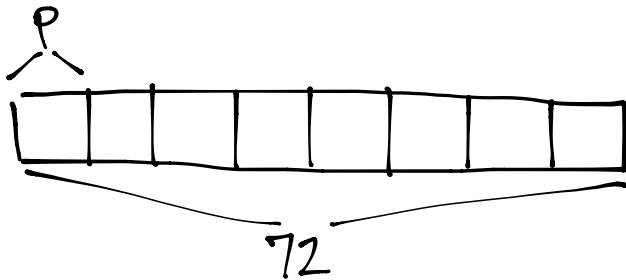5. There are 9 pens in a pack. Ms. Ochoa buys 9 packs. After giving her students some pens, she has 27 pens left. How many pens did she give away?

Before

After
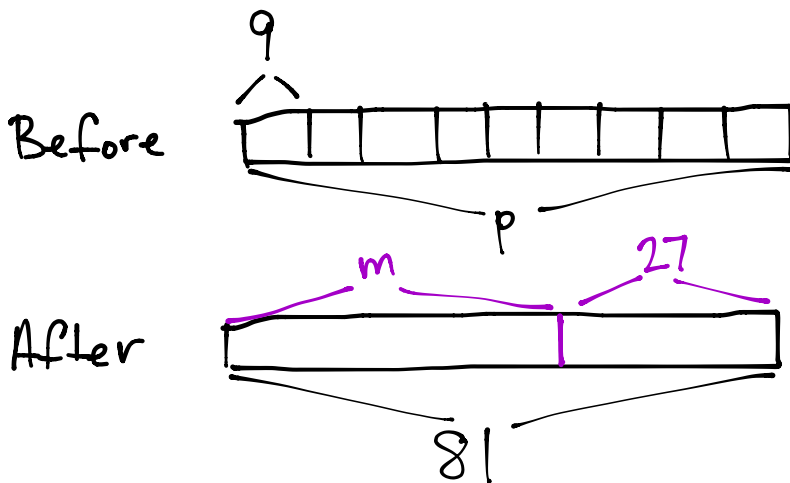
$9 \times 9 = p$ There are 81 pens total.
$p = 81$

$81 - 27 = m$ She gave away 54 pens.
$m = 54$

6. Allen buys 9 packs of trading cards. There are 10 cards in each pack. He can trade 30 cards for a comic book. How many comic books can he get if he trades all of his cards?

$9 \times 10 = c$ There are 90 cards.
$c = 90$

30   30   30

$90 \div 30 = 3$

He can get 3 books.

COMMON CORE   **Lesson 15:**   Interpret the unknown in multiplication and division to model and solve problems.
Date: 7/31/13
engage^ny   **3.D.46**
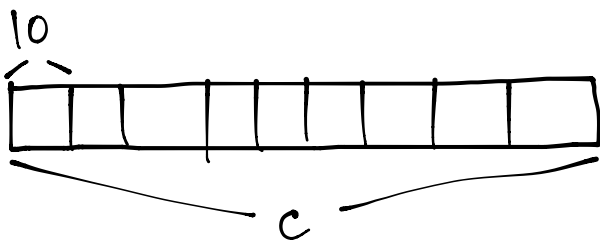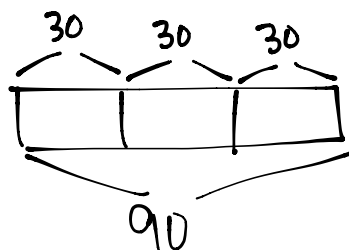
Name _____   Date _____

1. Solve.

   a. $4 \times 1 = $ __**4**__

   b. $4 \times 0 = $ __**0**__

   c. __**5**__ $\times 1 = 5$

   d. __**0**__ $\div 5 = 0$

   e. $6 \times $ __**1**__ $= 6$

   f. __**0**__ $\div 6 = 0$

   g. $0 \div 7 = $ __**0**__

   h. $7 \times $ __**0**__ $= 0$

   i. $8 \div $ __**1**__ $= 8$

   j. __**1**__ $\times 8 = 8$

   k. $9 \times $ __**1**__ $= 9$

   l. $9 \div $ __**9**__ $= 1$

2. Match each equation with its solution.

$9 \times 1 = w$		$w = 6$
$w \times 1 = 6$		$w = 7$
$7 \div w = 1$		$w = 8$
$1 \times w = 8$		$w = 9$
$w \div 8 = 0$		$w = 1$
$9 \div 9 = w$		$w = 0$

Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division.

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3. Let $c = 8$. Then determine whether the equations are true or false.

a. $c \times 0 = 8$	Example: False.
b. $0 \times c = 0$	True
c. $c \times 1 = 8$	True
d. $1 \times c = 8$	True
e. $0 \div c = 8$	False
f. $8 \div c = 1$	True
g. $0 \div c = 0$	True
h. $c \div 0 = 8$	False

4. Rajan says that any number multiplied by 1 equals that number.
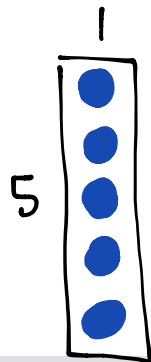
   a. Write a multiplication equation using n to represent Rajan's statement.

   $$n \times 1 = n$$

   b. Using your equation from Part (a), let $n = 5$ and draw a picture to show that the new equation is true.

   $$n \times 1 = n \quad if \ n = 5$$
   $$5 \times 1 = 5$$

COMMON CORE

Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1
            as they relate to multiplication and division.
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engage^ny   3.E.14

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1. Write the products as fast as you can into the chart.

×	1	2	3	4	5	6	7	8
1	1	2	3	4	5	6	7	8
2	2	4	6	8	10	12	14	16
3	3	6	9	12	15	18	21	24
4	4	8	12	16	20	24	28	32
5	5	10	15	20	25	30	35	40
6	6	12	18	24	30	36	42	48
7	7	14	21	28	35	42	49	56
8	8	16	24	32	40	48	56	64

a. Color the rows and columns with even factors yellow.

b. What do you notice about the factors and products that are left unshaded?

The unshaded factors and products are all odd numbers.

c. Complete the chart below by filling in each blank and writing an example for the each rule.

Rule	Example
odd times odd equals _odd_	$3 \times 5 = 15$ $7 \times 7 = 49$
even times even equals _even_	$4 \times 8 = 32$ $2 \times 8 = 16$
even times odd equals _even_	$6 \times 3 = 18$ $2 \times 7 = 14$

d.   Explain how 7 × 6 = (5 × 6) + (2 × 6) is shown in the table.

The table shows 5×6 = 30 and 2×6 = 12. So, 30 + 12 = 42, which is the product of 7 × 6.

e.   Use what you know to find the product of 4 × 16 or 8 fours + 8 fours.

$$4 \times 16 = (4 \times 8) + (4 \times 8)$$
$$= 32 + 32$$
$$= 64$$

2.   In the lesson, we found that n × n is the sum of the first n odd numbers. Use this pattern to find the value of *n* for each equation below. The first is done for you.

a.   1 + 3 + 5 = n × n

9 = 3 × 3

b.   1 + 3 + 5 + 7 = n × n

16 = 4 × 4

c.   1 + 3 + 5 + 7 + 9 + 11 = n × n

36 = 6 × 6

d.   1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 = n × n

64 = 8 × 8

e.   1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 = n × n

100 = 10 × 10

COMMON CORE   **Lesson 17:**   Identify patterns in multiplication and division facts using the multiplication table.   engage^ny   **3.E.25**

Date: 3/3/14
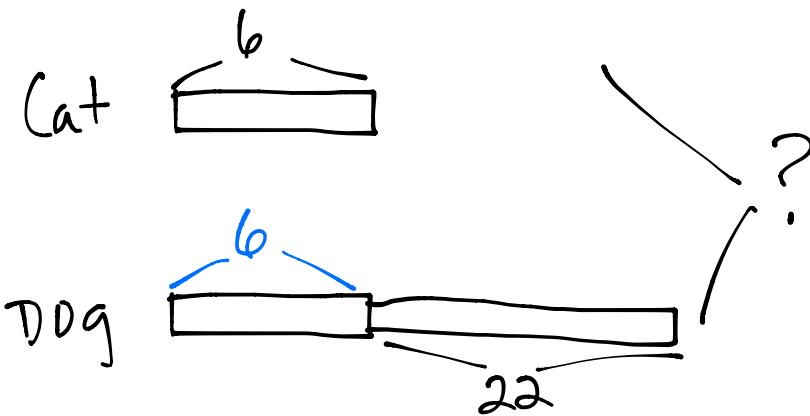
Name _____   Date _____

Directions: Use the RDW process for each problem. Explain why your answer is reasonable.

1. Mrs. Portillo's cat weighs 6 kilograms. Her dog weighs 22 kilograms more than her cat. What is the total weight of her cat and dog?
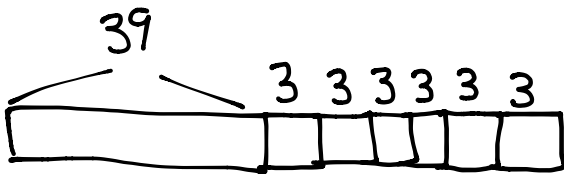
Cat

6

Dog

6

22

?

$6 + 6 + 22$

$= 12 + 22$

$= 34$

The total weight of her cat and dog is 34 kg.

2. Darren studies for his science test for 39 minutes. He then does 6 chores. Each chore takes him 3 minutes. How many minutes does Darren spend studying and doing chores?
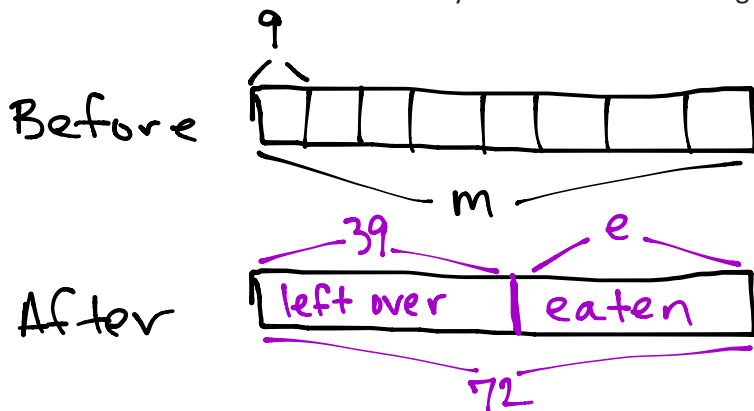
39

3 3 3 3 3 3

$39 + 6 \times 3$

$= 39 + 18$

$= 57$

Darren spent 57 minutes studying and doing chores.

3. Mr. Abbot buys 8 boxes of granola bars for a party. Each box has 9 granola bars. After the party, there are 39 bars left. How many bars were eaten during the party?

9

Before

m

After | left over | eaten |

39   e

72

$8 \times 9 = m$

$m = 72$

$72 - 39 = e$

$e = 33$

Mr. Abbot bought 72 granola bars.

33 bars were eaten at the party.

COMMON CORE

Lesson 18: Solve two-step word problems involving all four operations and assess the reasonableness of solutions.
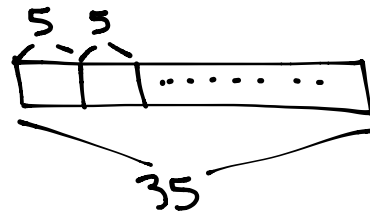
Date: 7/31/13

engageny

3.E.35

4. Leslie weighs her marbles in a jar, and the scale reads 474 grams. The empty jar weighs 439 grams. Each marble weighs 5 grams. How many marbles are in the jar?

How many marbles?

439

5 5

474

35

$$4\overset{6}{\cancel{7}}\overset{1}{4}$$
$$-439$$
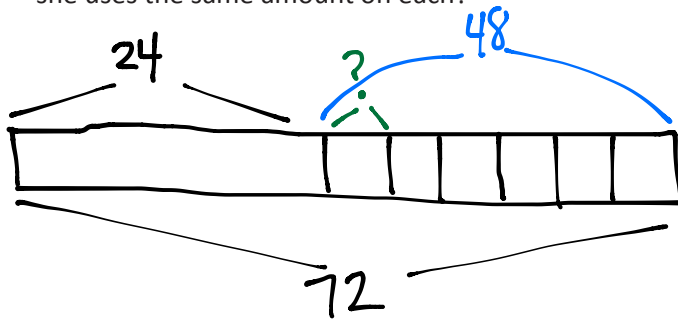$$\overline{35}$$
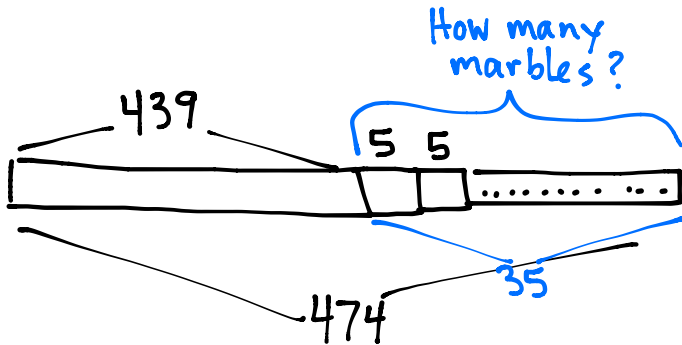
The marbles weigh 35 grams.

5 5

35

$35 \div 5 = m$

$7 = m$

There are 7 marbles in the jar.

5. Sharon uses 72 centimeters of ribbon to wrap gifts. Of that total, she uses 24 centimeters to wrap a big gift. She uses the remaining ribbon for 6 small gifts. How much ribbon will she use for each small gift if she uses the same amount on each?

24   ?   48

72

$$72 - 24 = 48$$

48 cm for the six small gifts.

$$48 \div 6 = 8$$

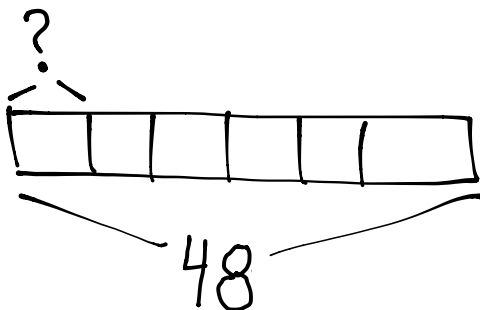$$\overset{6}{\cancel{7}}\overset{1}{2}$$
$$-24$$
$$\overline{48}$$

8 cm of ribbon for each small gift.

6. Six friends equally share the cost of a gift. They pay $90 and receive $42 in change. How much does each friend pay?

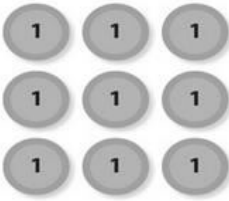$$90 - 42 = 48$$

?

48

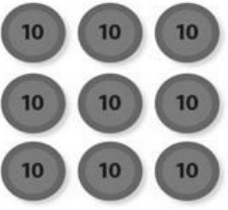They paid $**48** in total.

$$48 \div 6 = 8$$

Each friend paid $8.

COMMON CORE

Lesson 18:   Solve two-step word problems involving all four operations and assess the reasonableness of solutions.

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engage^ny

3.E.36

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Name _____   Date _____

1. Use the disks to complete true number sentences.
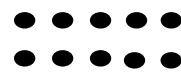
a.

3 ones × 3 = __9__ ones

3 × 3 = __9__
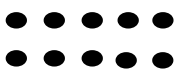
b.

3 tens × 3 = __9__ tens

30 × 3 = __90__
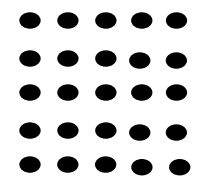
2. Use the chart to complete true number sentences.

tens	ones
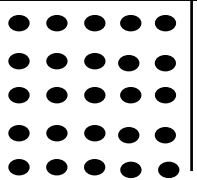
a.   2 × 5 ones = __10__ ones

2 × 5 = __10__

tens	ones

b.   2 × 5 tens = __10__ tens

2 × 50 = __100__

tens	ones

c.   5 × 5 ones = __25__ ones

5 × 5 = __25__

tens	ones

d.   5 × 5 tens = __25__ tens

5 × 50 = __250__

3.   Match.

6 × 2	120
6 tens × 2	21
7 × 3	12

7 tens × 3	270
70 × 5	210
3 × 90	350
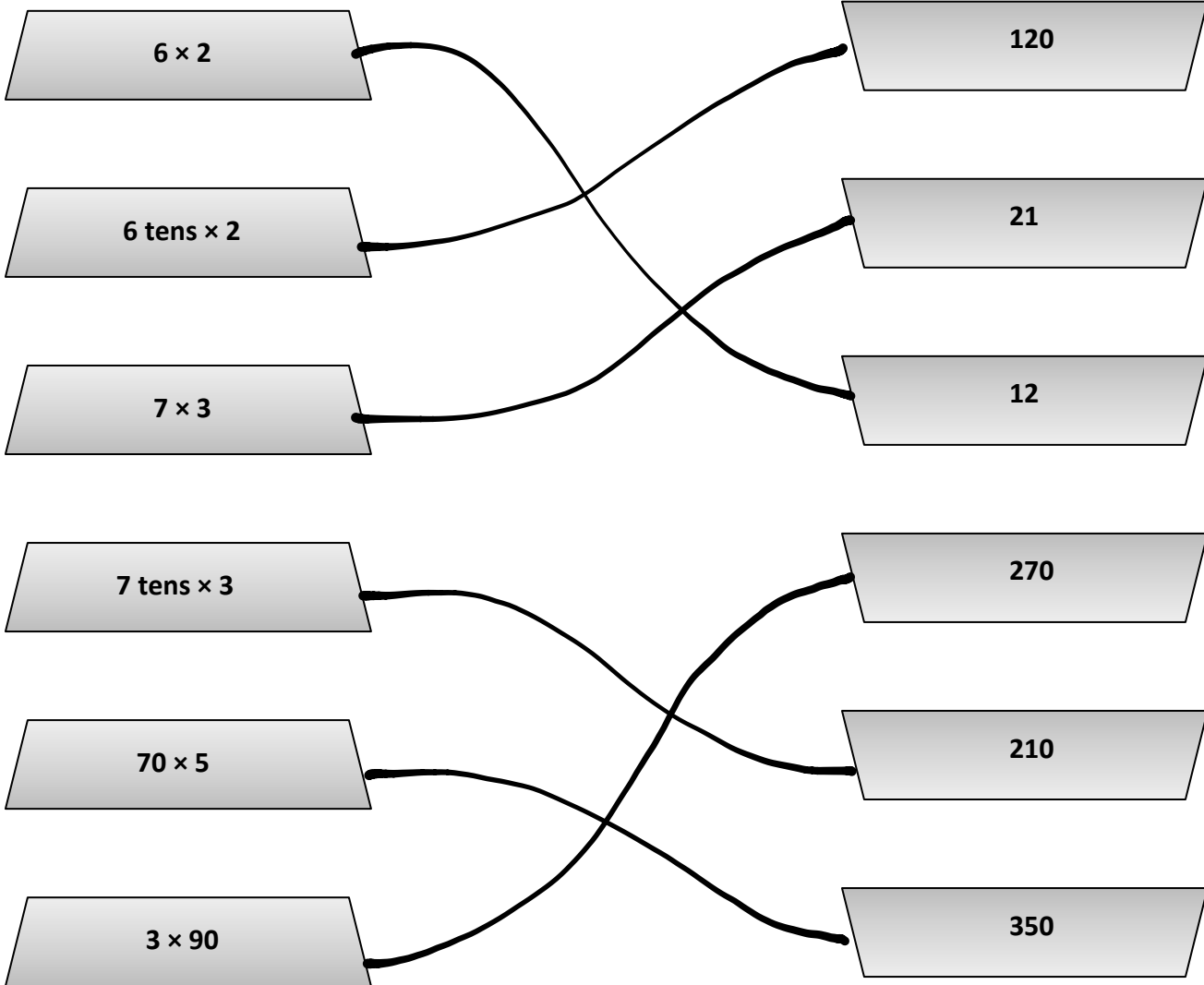
4.   Each classroom has 30 desks. Use a tape diagram to find the total number of desks in 8 classrooms.
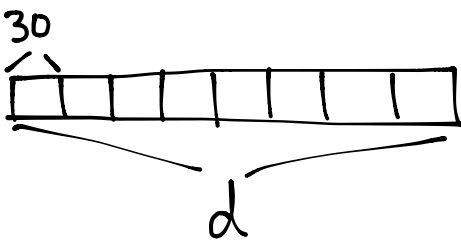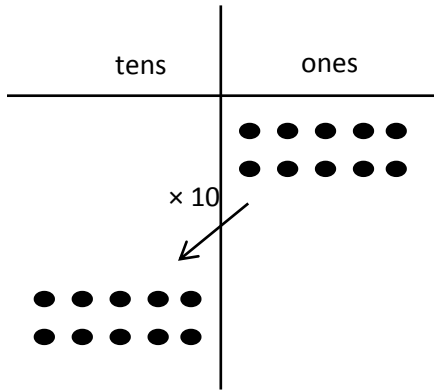
$$8 \times 30 = d$$
$$d = 240$$
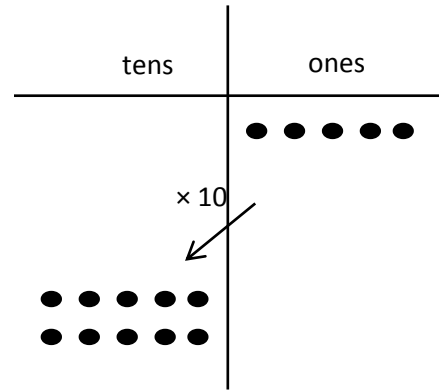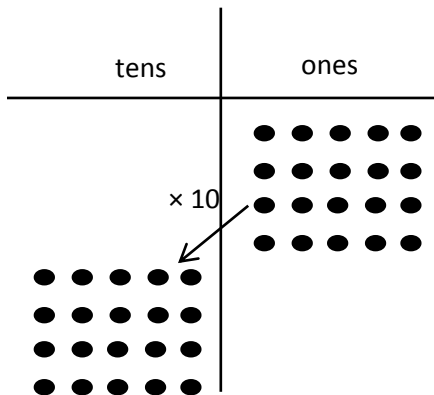
There are 240 desks altogether.

Name _____   Date _____
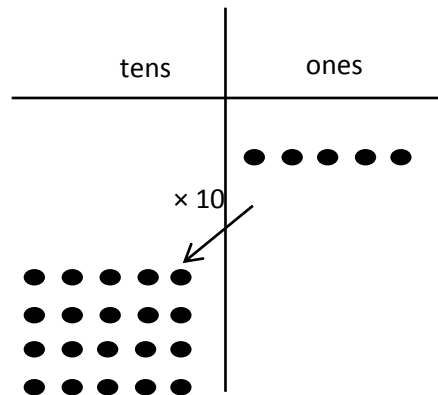
1. Use the chart to complete the equations. Then solve.

a. $(2 \times 5) \times 10$

= (10 ones) × 10

= _100_

b. $2 \times (5 \times 10)$

= 2 × (5 tens)

= _100_

c. $(4 \times 5) \times 10$

= (_20_ ones) × 10

= _200_

d. $4 \times (5 \times 10)$

= 4 × (_5_ tens)

= _200_

2. Solve. Place ( ) in (c) and (d) as needed to find the related fact.

a. 3 × 20 = 3 × (2 × 10)

= (3 × 2) × 10

= __6__ × 10

= __60__

b. 3 × 30 = 3 × (3 × 10)

= (3 × 3) × 10

= __9__ × 10

= __90__

c. 3 × 40 = 3 × (4 × 10)

= (3 × 4) × 10

= __12__ × 10

= __120__
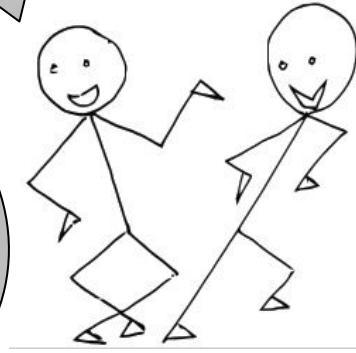
d. 3 × 50 = 3 × 5 × 10

= (3 × 5) × 10

= __15__ × 10

= __150__

3. Danny solves 5 × 20 by thinking about 10 × 10. Explain his strategy.

$5 \times 20 = 5 \times 2 \times 10$

$= (5 \times 2) \times 10$

$= 10 \times 10$

After factoring 20 to 2×10, parentheses can be added to show that 5×20 = 10 × 10.

COMMON CORE | **Lesson 20:** Use place value strategies and the associative property
$n \times (m \times 10) = (n \times m) \times 10$ (where n and m are less than 10)
to multiply multiples of 10.
Date: 7/31/13

engage^ny 3.F.22

Name _____   Date _____

Directions: Use the RDW process for each problem. Use a letter to represent the solution.

1. There are 60 minutes in 1 hour. Use a tape diagram to find the total number of minutes in 6 hours and 15 minutes.

$60 \times 6 + 15$

$10 \times 6 \times 6 + 15$

$10 \times 36 + 15$

$360 + 15 = 375$

There are 375 minutes in 6 hours 15 minutes.

2. Ms. Lemus buys 7 boxes of snacks. Each box has 12 packets of fruit snacks and 18 packets of cashews. How many snacks did she buy altogether?
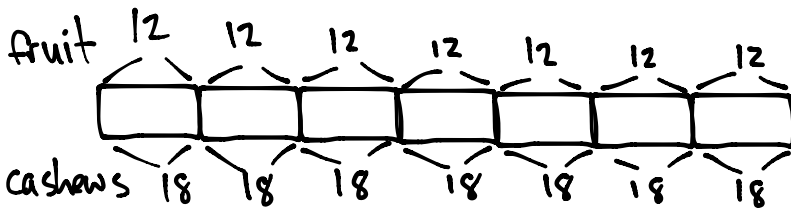
$7 \times (12 + 18) = 7 \times 30$

$= 7 \times 3 \times 10$

$= 21 \times 10$

$= 210$

Ms. Lemus bought 210 snacks altogether.

3. Tamara wants to buy a tablet that costs $437. She saves $50 a month for 9 months. Does she have enough money to buy the tablet? Explain why or why not.

$9 \times 50 = 9 \times 5 \times 10$

$= 45 \times 10$

$= 450$

Since $450 is greater than $437, Tamara will have enough money to buy the tablet.
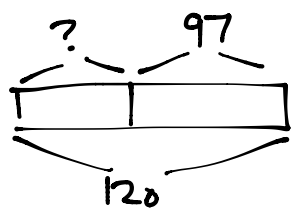
4. Mr. Ramirez receives 4 sets of books. Each set has 16 fiction books and 14 non-fiction books. He puts 97 books in his library and donates the rest of his books. How many books does he donate?

Fiction

16   16   16   16

Non-fiction   14   14   14   14
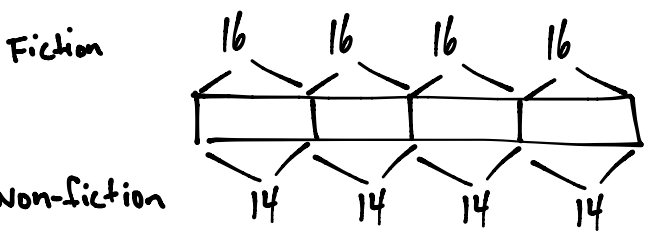
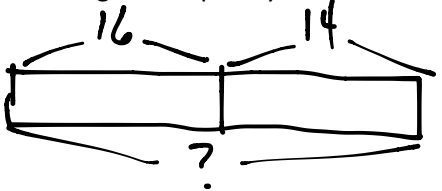$$4 \times 30 = b$$
$$b = 120$$

He has 120 books.

?   97

120

$$\begin{array}{r} 120 \\ -97 \\ \hline 23 \end{array}$$

He donates 23 books.

5. Celia sells calendars for a fundraiser. Each calendar costs $9. She sells 16 calendars to her family members and 14 calendars to the people in her neighborhood. Her goal is to earn $300. Does Celia reach her goal? Explain your answer.

16   14

?

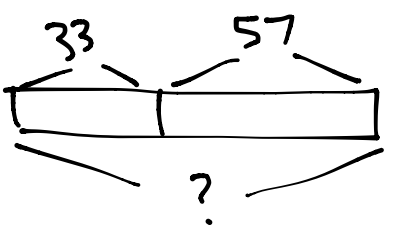$$\begin{array}{r} 16 \\ +14 \\ \hline 30 \end{array}$$

Celia sold 30 calendars

$$30 \times 9 = 270$$

Celia earned $270.

$$\begin{array}{r} 300 \\ -270 \\ \hline 30 \end{array}$$

Celia missed her goal by $30.

6. The video store sells science and history movies for $5 each. How much money does the video store make if it sells 33 science movies and 57 history movies?

33   57

?

$$\begin{array}{r} 57 \\ +33 \\ \hline 90 \end{array}$$

The store sold 90 movies.

$$90 \times 5 = 450$$

The video store earned $450.

COMMON CORE

Lesson 21: Solve two-step word problems involving multiplying single-digit factors and multiples of 10.

Date: 7/31/13

engage^ny   3.F.34