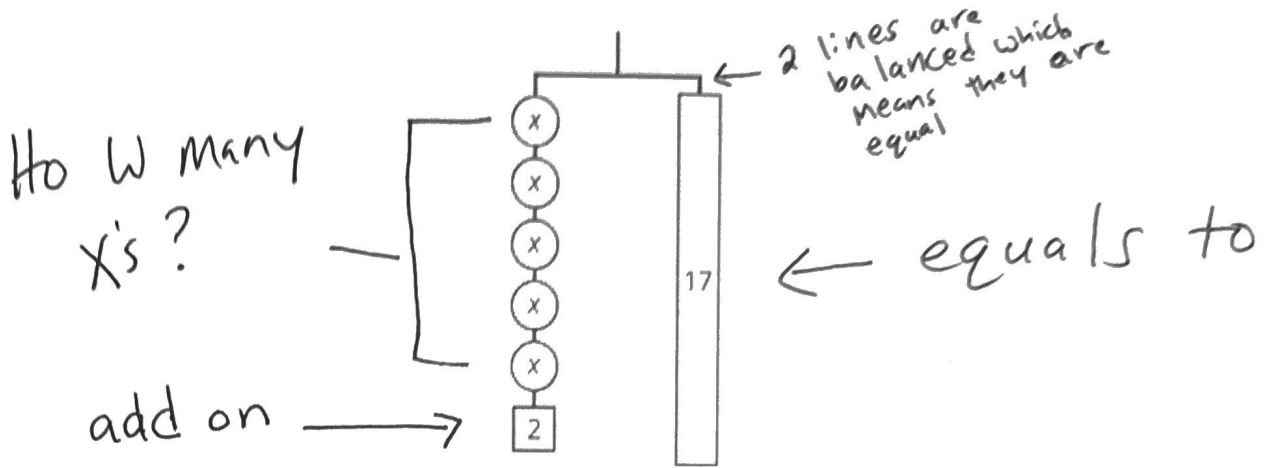


Unit 6 Mid-Unit Review

1. In the hanger diagram below there are two labeled weights of 2 grams and 17 grams. The five circles each have the same weight.



- a. Write an equation that represents the hanger diagram.

$$5x + 2 = 17$$

- b. What is the weight of each circle in grams?

$$5x + 2 = 17$$

$$5x = 15 \quad \div 5$$

$$x = 3$$

To solve for "x" you must do opposite operation

2. At practice, Danielle swims three times as many laps as Erica and 20 freestyle laps. She does 50 laps in total.

- a. Write an equation that represents the situation.

What laps Erica swims \rightarrow

$$3x + 20 = 50$$

- b. What does the x represent in the situation?

- Step 1: opposite operation of just the #.
- Step 2: Bring down what's left
- Step 3: opposite operation to get "x" by itself

$$3x + 20 = 50$$

$$3x = 30$$

$$x = 10$$

★ letter next to a number means multiplication

opposite operation

Name:

Date:

Core:

3. Solve each equation:

a. $5x - (-12) = 37$

$$\begin{array}{r}
 5x + 12 = 37 \\
 \underline{-12} \\
 5x = 25 \\
 \div 5 \\
 \hline
 x = 5
 \end{array}$$

-(-
 ↳ change to + sign

b. $\frac{3}{4}(4x - 2) = -12$

$$\begin{array}{r}
 3x - 1.5 = -12 \cdot \frac{10}{10} \\
 \underline{+1.5} \\
 3x = -10.5 \\
 \div 3 \\
 \hline
 x = -3.5
 \end{array}$$

If () then you must distribute 1st * multiply both numbers inside

c. $-13 = 5(1 + 4m)$

$$\begin{array}{r}
 -13 = 5 + 20m \\
 \underline{-5} \\
 -18 = 20m \\
 \div 20 \\
 \hline
 m = 0.9
 \end{array}$$

d. $-8 - (-5k) = 10$

$$\begin{array}{r}
 -8 + 5k = 10 \\
 \underline{+8} \\
 5k = 18 \\
 \div 5 \\
 \hline
 k = 3.6
 \end{array}$$

$$\begin{array}{r}
 5 \overline{) 18.0} \\
 \underline{-15} \downarrow \\
 30 \\
 \underline{-30} \\
 0
 \end{array}$$

4. UPS are loading packages for the holiday season. Each package must weigh 38 pounds. ← total

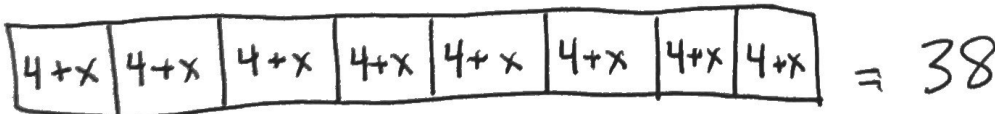
In each situation below, write and solve an equation to represent the situation. If you get stuck, try drawing a diagram.

and means + sign

a. Each package contains 8 boxes. Each box contains a 4-pound bag of candy canes and a bag of Santa hats. The bags of candy canes are all identical.

Santa Hats

unknown so write "x"



of notes → $8(4+x)$

$$32 + 8x = 38$$

$$\begin{array}{r}
 32 + 8x = 38 \\
 \underline{-32} \\
 8x = 6 \\
 \div 8 \\
 \hline
 x = .75
 \end{array}$$

Name:

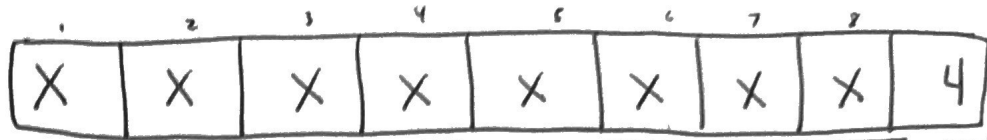
Date: unknown so write "x"

Core:

- b. Each package contains 8 identical bags of Santa hats and a 4-pound bag of candy canes.

$$8x + 4 = 38$$

$$\begin{array}{r} 8x + 4 = 38 \\ -4 \\ \hline 8x = 34 \\ \div 8 \\ \hline x = 4.25 \end{array}$$



$$8 \overline{) 34.00}$$

$$\begin{array}{r} 4.25 \\ 8 \overline{) 34.00} \\ \underline{-32} \\ 20 \\ \underline{-16} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

5. For the door contest at Apex Friendship Middle, Elisa will create a theme for each door. She will print graphics and pictures for them. Elisa will spend \$235 on printing paper supplies and \$3.75 per door created due to supplies used on the door.

$$3.75x + 235$$

Complete the table giving the total cost Elisa will spend to decorate each specific number of doors.

Number of doors	Cost in dollars
10	$3.75 \times 10 + 235 = 37.50 + 235 =$
20	$3.75 \times 20 + 235 =$
30	$3.75 \times 30 + 235 =$ 347.50

- a. Write an equation for decorating "x" amount of doors.

$$3.75x + 235 =$$

- b. What is the maximum amount of doors Elisa can decorate with a budget of \$1,000?

$$765 \div 3.75 = 204$$

remove paper cost

204 doors

6. Select all the equations that are true when is $x = -4$

Next page

Name:

Date:

Core:

A. $-8 \div 2 = 2x = -4$

B. $-12 = x \cdot -3 = 4$

C. $-12 = x + x + x$
 $\div 3 \quad 12 \div 3 = 4$

D. $\frac{x}{4} = -1 \cdot 4 = -4$

E. $x + 4 = -8$
 $\leftarrow -4 \quad -4 = -12$

F. $x^2 = -16$

so opposite is multiplying!

Remember to solve for variable "x" we must use the opposite operation to get rid of all things (numbers)

7. Match each expression in the left column with an equivalent expression in the right column.

A. $n + n + n + n$ $4n$

B. $4n - 36 \div 4$ $4(n-9)$

C. $n(9-4)$ $9n - 4n$

D. $4(n-36)$ $4 \cdot n + 4 \cdot 36$

E. $4n - 9$
 $4n + -9$

1. $(n-36) \cdot 4$ D

2. $4n + -9$ E

3. $4n$ A

4. $9n - 4n$ C

5. $4(n-9)$ B