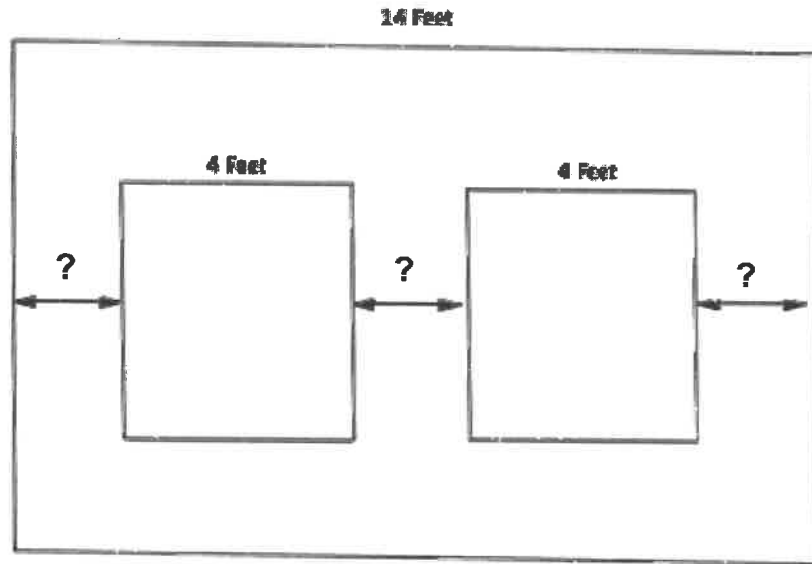


Warm Up & Fill out assignment notebook

- 1) You decide to redecorate a wall by hanging two new posters on the wall. The wall is 14 feet wide and each poster is four feet wide. You want to place the posters on the wall so that the distance from the edge of each poster to the nearest edge of the wall is the same as the distance between the posters, as shown in the diagram below. Determine that distance.



Oct 8-4:35 PM

Remember this???

Solve $7x$ if $x = 2$

$6 + x$; use $x = -5$

$4p + 7$; use $p = 8$

Nov 8-4:21 PM

Got It? Do these problems to find out.

Evaluate each expression if $c = 8$ and $d = -5$.

a. $c - 3$

b. $15 - c$

c. $3(c + d)$

d. $2c - 4d$

e. $d - c^2$

f. $2d^2 + 5d$

Got It? Do these problems to find out.

- g. To find the area of a triangle, use the formula $\frac{bh}{2}$, where b is the base and h is the height. What is the area in square inches of a triangle with a height of 6 inches and base of 8 inches?

Got It? Do this problem to find out.

- h. An MP3 player costs \$70 and song downloads cost \$0.85 each. Write an expression that represents the cost of the MP3 player and x number of downloaded songs. Then find the total cost if 20 songs are downloaded.

expression: _____

solve if $x = 20$ _____

How to check if a number is a solution to the equation:

$$3x - 1 = 5 \quad \text{is } x = 2 \text{ a solution?}$$

$$7m + 8 = 20 \quad m = 2$$

Nov 8-4:28 PM

$$3x + 14 = 5x + 10 \quad x = 2$$

$$-8y - 5 = \frac{y}{2} + 1 \quad y = 6$$

$$3(n + 8) = 2n - 6 \quad n = 5$$

Nov 8-4:31 PM

Are You Ready?

Review

Words and phrases in problems often suggest addition, subtraction, multiplication, and division.

Addition	Subtraction	Multiplication	Division
sum	minus	times	divided by
plus	less than	product	half
more than	decreased by	twice	quotient
increased by	difference	each	divide
in all	less	multiplied	per
			separate

Example 1

Write an algebraic expression for *6 more than a number*.

More than means add. Let n represent the number.

$$6 + n$$

Example 2

Write an algebraic expression for *4 less than the number of runs scored*.

Less than means subtract. Let r represent the number of runs.

$$r - 4$$

Exercises

Write each phrase as an algebraic expression.

- the number of minutes decreased by 10 1. _____
- 12 pounds more than the weight of a watermelon 2. _____
- half the number of golf balls 3. _____
- the number of blocks divided by 4 4. _____
- twice the number of stuffed animals 5. _____
- 8 less than the number of songs 6. _____
- the number of miles increased by 50 7. _____
- 7 times the number of cats 8. _____

Translating words into expressions

14 more points than the Dolphins scored

\$3 more than Sara has

a number decreased by 12

Nov 8-4:37 PM

Exercise 2:

The ages of three sisters are consecutive integers. The sum of their ages is 45. Calculate their ages.

If the youngest sister is x years old, describe the ages of the other two sisters in terms of x , write an expression for the sum of their ages in terms of x , and use that expression to write an equation that can be used to find their ages.

Oct 8-5:07 PM

Properties of Equality

What you do to one side, you do to the other
and the two sides remain equal

Subtraction Property of Equality:

Subtract the same number from both sides of
the equal sign, the two sides remain equal

Addition Property of Equality:

Add the same number from both sides of the
equal sign, the two sides remain equal

Division Property of Equality:

Divide the same number from both sides of the
equal sign, the two sides remain equal

Multiplication Property of Equality:

Multiply the same number from both sides of
the equal sign, the two sides remain equal

$$x + 5 = 12$$

$$7 + m = 22$$

$$y - 18 = 30$$

$$s - 20 = 5$$

One Step Addition and Subtraction Equations

The **INVERSE** operation of addition is subtraction.

The **INVERSE** operation of subtraction is addition.

$$1) x + 10 = -24$$

$$2) x + (-7) = 13$$

$$3) 5 + x = 2$$

$$4) x + 2.5 = -4.16$$

$$5) \frac{5}{8} + c = \frac{1}{4}$$

$$6) x - 12 = 5$$

$$7) x - 4 = -10$$

$$8) x - 24 = 15$$

$$9) -7 + x = -67$$

$$10) 94 = y - 76.98$$

$$11) x - 13.8 = -1.62$$

Divide and Multiply One Step Equations

The **INVERSE** operation of multiplication is division.

***When dividing with fractions, I have to multiply by the reciprocal.

The **INVERSE** operation of division is multiplication.

1) $-6x = 24$

2) $-6.2b = 28.52$

3) $2x = -20$

4) $-\frac{7}{10}x = -1\frac{2}{5}$

5) $\frac{x}{6} = 10$

6) $\frac{x}{-7} = 3$

$$m + 7 = 10$$

$$2x = 14$$

$$2x + 7 = 10$$

Nov 29-9:34 AM

Solving Two-Step Equations

When solving an equation, Remember:

- *Isolate the variable
- *Use inverse operations
- *Keep the equation balanced (what you do to one side, do to the other side)

- ~ 1st: remove constant term (add/sub)
- ~ 2nd: remove coefficient (multi/divide)

Jan 14-9:54 AM

$$1. 3x + 6 = 24$$

$$2. -2x + 6 = -24$$

$$3. 3x - 2 = -17$$

$$4. 4x + 3 = -5$$

$$5. -7 = 5x - 2$$

$$6. -\frac{2}{3}x + 5 = 3$$

$$8. \frac{x + 5}{4} = 10$$

$$9. \frac{x - 4}{-3} = 6$$

$$1) 3(x + 5) = 45$$

$$2) 5(n - 2) = -30$$

$$3) -5(x + 12) = 10$$

$$4) (x + 4)(-2) = 18$$

$$5) \frac{2}{3}(n + 6) = 10$$

$$6) \frac{1}{2}(w - 4) = 5$$

$$7) 0.2(c - 3) = -10$$

$$8) 0.4(w - 7) = 18$$

Name _____

Date _____

Writing Equations Worksheet #2A

Translate each situation into an algebraic equation:

1) Ann has the 5 newest music CD's which is 3 less than twice the amount that Bob has. _____

2) Mike, who has 6 video games, has half as many games as Paul.

3) Nan rode the roller coaster 8 times, which was twice as many times as she rode the Ferris wheel. _____

4) Janine, who bought \$15 worth of make-up, spent \$6 less than Leah spent. _____

5) Rob, who has all 13 girls' phone numbers that are in his homeroom, has 3 more than half the number of girls' phone numbers that Jay has.

- 6) Kate's 85 on her English test was 37 points less than twice the grade on her Science test. _____
- 7) At the Middle School Graduation Dance, the DJ played 12 slow dances, which was equal to the quotient of the number of fast dances and 2. _____
- 8) The 1,840 rock concert tickets sold were twice the amount of jazz concert tickets sold. _____
- 9) Meg received 90 votes for Student Council President, which were 50 less than twice the amount that Tom received.

- 10) The 347 students who listed soccer as their favorite sport were 13 less than three times the number of students who listed basketball as their favorite sport. _____

Lesson 8/9: Using If-Then Moves in Solving Equations (Word Problems)

Example 1:

Julia, Keller, and Israel are volunteer firefighters. On Saturday, the volunteer fire department held its annual coin drop fundraiser at a streetlight. After one hour, Keller had collected \$42.50 more than Julia, and Israel had collected \$15 less than Keller. The three firefighters collected \$125.95 in total. How much did each person collect?

The amount of money Julia collected is j dollars. Write an expression to represent the amount of money Keller collected in dollars.

Using the expressions for Julia and Keller, write an expression to represent the amount of money Israel collected in dollars.

Using the expressions written above, write an equation in terms of j that can be used to find the amount each person collected.

Solve the equation written above to determine the amount of money each person collected and describe any if-then moves used.

Example 2:

You are designing a rectangular pet pen for your new baby puppy. You have 30 feet of fence barrier. You decide that you would like the length to be $6\frac{1}{3}$ feet longer than the width.

Draw and label a diagram to represent the pet pen. Write expressions to represent the width and length of the pet pen.

Find the dimensions of the pet pen. Set up an equation and solve it.

Example 3

Nancy's morning routine involves getting dressed, eating breakfast, making her bed, and driving to work. Nancy spends $\frac{1}{3}$ of the total time in the morning getting dressed, 10 minutes eating breakfast, 5 minutes making her bed and the remaining time driving to work. If Nancy spent $35\frac{1}{2}$ minutes getting dressed, eating breakfast, and making her bed, how long was her drive to work?

Write and solve this problem using an equation. Decide if your answer is reasonable.

Identify the variable: x = total time of routine

Example 4

The total number of participants who went on the seventh-grade field trip to the Natural Science Museum consisted of all of the seventh-grade students and 7 adult chaperones. Two-thirds of the total participants rode a large bus, and the rest rode a smaller bus. If 54 students rode the large bus, how many students went on the field trip?

Example 5: (example 2 from lesson 9)

Shelby is seven times as old as Bonnie. If in 5 years, the sum of Bonnie and Shelby’s ages is 98, find Bonnie’s present age. Use an algebraic approach.

	<i>Present Age (in years)</i>	<i>Future Age (in years)</i>
<i>Bonnie</i>		
<i>Shelby</i>		