

Opener

$$\textcircled{1} \quad 9 \left| \frac{b}{2} \right| = 18$$

$$\begin{aligned} \textcircled{2} \quad 2x + 4 &= 48 + 4x \\ -4x - 4 &= -4 - 4x \\ \underline{-2x} &= \underline{44} \\ \underline{-2} & \\ x &= -22 \end{aligned}$$

Justify your steps.  
 Given  
 Reflexive  
 APE  
 Reflexive w/DPE

$$\textcircled{1} \quad \frac{9 \left| \frac{b}{2} \right|}{9} = \frac{18}{9}$$
$$\left| \frac{b}{2} \right| = 2$$

$$\frac{b}{2} = 2 \quad \text{or} \quad \frac{b}{2} = -2$$

$$b = 4 \quad \text{or} \quad b = -4$$

## Questions on 1C Translating English into Math

**2C Translating English to Math**

Name: \_\_\_\_\_ Per: \_\_\_\_\_

SHOW YOUR WORK ONLY IN PENCIL. NO WORK NO CREDIT.

1. Fill in the table for words **that could mean the same thing** as the following. Be prepared to justify your answers.

Difference	Decreased	Quotient	Of
Twice	Totals	Product	And
Increase	2 more than	Sum	Quantity
Split	Share	Results	Same As
Is the same as	Groups of	Is	
Minus	Evenly in parts	Less than	

+	(-)	×	÷	=

**Write AND solve an equation for each problem.** You can draw an arrow from the phrase that matches your equation. You must show your work! Then **CHECK YOUR WORK!**

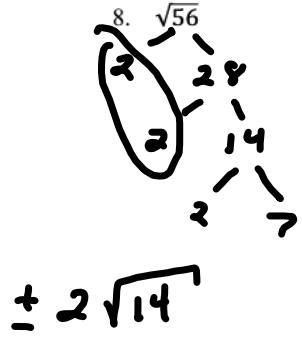
2. Eight more than some number is the same as twelve.
  
3. Twice a number totals 16 minus that number.
  
4. The difference between seven and some number is 65.
  
5. The sum of 18 and some number is the same as the product of four and that number.
  
6. A number decreased by eight totals twelve.

7. Six less than the product of 3 and a number, is added to 2 with a result of 20. What is the number?

$(3n - 6) + 2 = 20$   
 $3n - 4 = 20 \Rightarrow 3n = 24 \Rightarrow n = 8$

Simplify the following roots to the lowest integer radicand.

8.  $\sqrt{56}$                       9.  $\sqrt{108}$                       10.  $\sqrt{40}$                       11.  $\sqrt{32}$



Solve the following absolute value equations

12.  $|x + 5| = 14$

15.  $\frac{|x+8|}{9} = 4$

13.  $\left|\frac{x}{9}\right| = 2$

16.  $-4\left|\frac{x}{5}\right| = -8$

14.  $8\left|\frac{b}{10}\right| = 8$

17.  $|x - 9| + 5 = 19$

Solve for the given variable and explain each of your steps.

18.  $3x + 9 = 44 - 2x$  GIVEN (What you know)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

19.  $5x - 7 = 7x - 17$  GIVEN

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

20.  $8x - (3x + 2) = 1$  GIVEN

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

21.  $4(x - 5) = 4$

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Solve each equation and then CHECK YOUR ANSWERS.

22.  $-138 = -6(6b - 7)$  ✓

24.  $-3 - 6(4x + 6) = -111$  ✓

23.  $-4(y + 2) = 28 + 2y$  ✓

25.  $-4(6n - 2) = 128$  ✓

## Grade 2C Translating English to Math

## Lesson 2D: Writing Story Problems

Rate of change problem ( $y = mx + b$ )

1. The taxi charges a \$1.75 flat rate in addition to \$0.50 for each mile.

- What variables represent what you need to know?
- Define those variables
- Write an equation. \_\_\_\_\_
- Katie only has \$10. How many miles can she ride?

$$m = .5 \quad b = 1.75$$

$$c) \begin{matrix} \text{\$} \\ \text{\$} \end{matrix} = \text{Taxi Charge}$$

$$m = \# \text{ of miles}$$

$$c) C = .5m + 1.75$$

$$d) 10 = .5m + 1.75$$

$$8.25 = .5m$$

$$16.5 = m$$

16.5 miles

Standard form problem:  $Ax + by = C$

2. One bus ride cost \$1 and one trax ride cost \$2. You have exactly \$50 to spend on transportation this month.

a. What variables represent what you need to know?

b. Define those variables

c. Write an equation. \_\_\_\_\_

d. If I take 12 trax rides, how bus rides can I take?

a)  $x = \# \text{ of bus rides}$      $y = \# \text{ of trax rides}$

b)

c) \$1 for bus = A    \$2 for trax = B

$$1x + 2y = 50$$

d)  $1x + 2(12) = 50$

$$x + 24 = 50$$

$$x = 26$$

26 bus rides



3. VHMS is having a pancake breakfast as a fundraiser. You estimate 200 adults and 250 students will attend. We want to raise \$3800 and we want to find out what price tickets should be.

- What variables represent what you need to know?
- Define those variables
- Write an equation. \_\_\_\_\_
- If we charge \$3 for the student tickets what would be the price for the adult tickets?

$$Ax + By = C$$

a)  $x = \$$  adult tickets       $y = \$$  student tickets

c)  $200x + 250y = 3800$

d)  $y = 3$

$$200x + 250(3) = 3800$$

$$200x + 750 = 3800$$

$$200x = 3050$$

$$x = 15.25$$

Adult tickets would cost \$15.25

That's too much, we need to charge more for student tickets. ☺

**Write an equation in Slope-intercept Form**

Grandma gives Brooklyn a piggy bank with \$25 when she was born. Every year, on her birthday, Brooklyn puts a \$20 in her bank.

1. What variables best represent what you need to know (not  $x$  and  $y$ )? \_\_\_\_\_
2. Define those variables. \_\_\_\_\_
3. Write an equation to tell how much money Brooklyn will have in any given year. \_\_\_\_\_
4. If Brooklyn never used or added more money to the piggy bank, how much money would Brooklyn
5. have in bank on her 15<sup>th</sup> birthday? \_\_\_\_\_

**Write an equation** to answer the questions. Try not to use “x” and “y”.

You played a game of basketball with your friends. You scored a total of 53 points (no three points shots). A basket is good for 2 points and free throw 1 point.

- a. Define your variables \_\_\_\_\_
- b. Write an equation. \_\_\_\_\_
- c. If you make 23 baskets (2 points each), how many free throws did you make? \_\_\_\_\_

Write an equation in **Standard Form** ( $Ax + By = C$ ) for the following situations.

You buy 5 hamburgers in a restaurant, and 4 shake. You spend exactly \$36. Let  $h$  represent the cost of hamburgers, and  $s$  represent the cost of shakes.

- a. Write an equation to represent the situation. \_\_\_\_\_
- b. If shakes cost \$3.50 each, how much did each hamburger cost. \_\_\_\_\_

$$\sqrt[3]{27}$$



$$\sqrt[3]{27} = 3$$

$$\begin{aligned}\sqrt[3]{168} &= \sqrt[3]{2 \cdot 2 \cdot 2 \cdot 3 \cdot 7} \\ &= 2 \sqrt[3]{21}\end{aligned}$$



$$x^3 - 3 = 122$$

$$\sqrt{x^3} = \sqrt{125}$$

$$x = \sqrt{5 \cdot 5 \cdot 5}$$

$$x = 5$$

$$2\sqrt{x-5} = 10$$

$$(\sqrt{x-5})^2 = (5)^2$$

$$x-5 = 25$$

$$x = 30$$

$$2 - 2\sqrt{x-8} = -3$$

$$-2\sqrt{x-8} = -5$$

$$(\sqrt{x-8})^2 = \left(\frac{5}{2}\right)^2$$

$$x-8 = \frac{25}{4}$$

$$x = \frac{25}{4} + 8$$

$$x = \frac{25}{4} + \frac{32}{4} = \frac{57}{4}$$

$$3\sqrt[3]{\frac{s}{3}} = 9$$

$$\left(\sqrt[3]{\frac{s}{3}}\right)^3 = (3)^3$$

$$\frac{s}{3} = 9$$

$$s = 27$$



## Attachments

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2C Translating English to Math.pdf

2c key 2.notebook

L2D Word problems 2.notebook