

Multi-Step Word Problems Guided Notes

- 1) Alex needs to rent a moving truck. Suppose Company A charges a rate of \$40 per day and Company B charges \$60 fee plus \$20 per day. For what number of days is the cost the same?

Company A = Company B x = # of days

$$40x = 20x + 60$$

$$40x - 20x = 20x + 60 - 20x$$

$$20x = 60$$

$$\frac{20x}{20} = \frac{60}{20}$$

$$x = 3 \text{ days}$$

- 2) Three times a number minus 8 is equal to 5 times the same number plus 10. What is the number?

(A) -9
B. 1
C. 9

$$3x - 8 = 5x + 10$$

$$3x - 8 - 5x = 5x + 10 - 5x$$

$$-2x - 8 = 10$$

$$-2x - 8 + 8 = 10 + 8$$

$$-2x = 18$$

$$\frac{-2x}{-2} = \frac{18}{-2}$$

$$x = -9$$

- 3) Emily is 4 years older than Grace. When their ages are added together, they equal 26. How old is Emily?

A. 13 years old
B. 15 years old
C. 17 years old

g = Grace's age
Emily = g + 4

$$g + g + 4 = 26$$

$$2g + 4 = 26$$

$$2g + 4 - 4 = 26 - 4$$

$$2g = 22$$

$$g = 11$$

Emily = 11 + 4 = 15

- 4) Four more than twice a number is two less than three times the number. Find the number.

$$2x + 4 = 3x - 2$$

$$2x + 4 - 3x = 3x - 2 - 3x$$

$$-x + 4 = -2$$

$$-x + 4 - 4 = -2 - 4$$

$$-x = -6$$

$$\frac{-x}{-1} = \frac{-6}{-1}$$

$$x = 6$$

- 5) The table below shows the models for the cost, in dollars, for renting a car for x miles from two different rental companies. At what number of miles will the cost be the same?

Company a	$1.25x + 50$
Company b	$1.3x + 40$

$$1.25x + 50 = 1.3x + 40$$

$$1.25x + 50 - 1.3x = 1.3x + 40 - 1.3x$$

$$-0.05x + 50 = 40$$

$$-0.05x + 50 - 50 = 40 - 50$$

$$-0.05x = -10$$

$$\frac{-0.05x}{-0.05} = \frac{-10}{-0.05}$$

$$x = 200 \text{ miles}$$

- 6) Three less than twice a number is three times the sum of one and the number. What is the number?

$$2x - 3 = 3(1 + x)$$

$$2x - 3 = 3 + 3x$$

$$2x - 3 - 3x = 3 + 3x - 3x$$

$$-x - 3 = 3$$

$$-x - 3 + 3 = 3 + 3$$

$$-x = 6$$

$$\frac{-x}{-1} = \frac{6}{-1}$$

$$x = -6$$

- 7) A telephone company charges a monthly fee of \$24 for 100 minutes of long distance service. The customer must then pay 7 cents per additional minute over 100. Todd's phone bill for October was \$26.38, not including taxes. How many total minutes of long distance did Todd use in October?

A. 34
B. 66
C. 134
D. 377

$$24 + 0.07x = 26.38$$

$$24 + 0.07x - 24 = 26.38 - 24$$

$$0.07x = 2.38$$

$$\frac{0.07x}{0.07} = \frac{2.38}{0.07}$$

$$x = 34$$

34 + 100 = 134

- 8) Eight more than twice a number is four times the difference between five and the number. What is the number?

$$2x + 8 = 4(5 - x)$$

$$2x + 8 = 4(5) + 4(-x)$$

$$2x + 8 = 20 - 4x$$

$$2x + 8 + 4x = 20 - 4x + 4x$$

$$6x + 8 = 20$$

$$6x + 8 - 8 = 20 - 8$$

$$6x = 12$$

$$\frac{6x}{6} = \frac{12}{6}$$

$$x = 2$$

- 9) Sixteen is fourteen less than the product of a number and five. What is the number?

$$16 = 5x - 14$$

$$16 + 14 = 5x - 14 + 14$$

$$30 = 5x$$

$$\frac{30}{5} = \frac{5x}{5}$$

$$x = 6$$

- 10) Two times a number plus one equals four times the same number minus five. What is the number?

A. -3
B. -1
C. 3

$$2x + 1 = 4x - 5$$

$$2x + 1 - 4x = 4x - 5 - 4x$$

$$-2x + 1 = -5$$

$$-2x + 1 - 1 = -5 - 1$$

$$-2x = -6$$

$$\frac{-2x}{-2} = \frac{-6}{-2}$$

$$x = 3$$

- 11) Suppose your club is selling candles to raise money. It costs \$100 to rent a booth from which to sell the candles. If the candles cost your club \$1 each and are sold for \$5 each, how many candles must be sold to equal your booth rent?

$$5x - 1x = 100$$

$$4x = 100$$

$$\frac{4x}{4} = \frac{100}{4}$$

$$x = 25$$