

CED Quiz - Review

1) Write an algebraic sentence for the following scenarios. **Then solve.**

- a) Five times the difference of a number and six is the same as three less than the quotient of two times a number and negative four.

$$x = \frac{54}{11} \quad \text{or} \quad \approx 4.91$$

- b) The sum of four times a number and 5 is greater than the quotient of five less than two times that number and 3.

$$x > -2$$

2) Solve each of the following equations for the variable requested.

a) Solve for y:

i. $2x + 7y = 21$

$$y = \frac{-2x + 21}{7} \quad \text{OR} \quad y = -\frac{2}{7}x + 3$$

b) solve for h:

i. $V = lwh$

$$h = \frac{V}{lw}$$

ii. $\frac{1}{5}y - 4x = 3$

$$y = 20x + 15 \quad \text{OR} \quad y = \frac{4x + 3}{\frac{1}{5}}$$

ii. $A = \frac{1}{2}(b_1 + b_2)h$

$$h = \frac{2A}{(b_1 + b_2)}$$

Write equations for the following. Then solve any TWO.

- 3) The number of students at PV is currently 1342 and is increasing at a rate of 45 students each year. How many years will it take for the student population to exceed 2000?

$$\approx 15 \text{ years}$$

- 4) Mr. Pischke's son is 13 years old. Her daughter is 9 less than twice his age. How old is her daughter?

$$17 \text{ years}$$

- 5) The temperature yesterday was 92 degrees and is predicted to fall 4 degrees per day. When will the temperature reach freezing (32 degrees)?

$$d = 15 \text{ days}$$

- 6) You just got a job selling cars. Your salary is \$2500 a month plus \$200 for each car you sell. How many cars will you have to sell to make at least \$4000?

$$c \geq 7.5$$

8 cars (can't sell partial car)

- 7) (Extension) You just got a job selling cars. Your salary is \$2500 a month plus \$200 for each car you sell over 10. How many cars will you have to sell to make at least \$4000?

HINT: Do you make any extra for selling 2 cars? 6 cars? 10 cars? 12 cars? Think about how you will show that you are selling more than the minimum amount.

$$x \geq 17.5$$

18 cars

- 8) You win the lottery and receive \$350,000. Because you are a generous person, you decide to share your winnings with your 3 closest friends and buy each of them a car, but first you have to pay the taxes on your winnings and get a car for yourself. Uncle Sam takes $\frac{1}{2}$ of your winnings for taxes and your car costs \$55,000.

a) Write an equation for this scenario.

$$350,000 = 55,000 + 175,000 + 3c$$

b) How much can you spend on each car for your friends?

\$ 40,000 per car

- c) If you decided to forget the cars for your friends and use the money to pay for college, would you have enough for a school that charges \$35,000 a year (for 4 years)? Explain.

No -- it would cost \$20,000 more than you have

- d) Create a scenario that would allow you to use the money to pay the taxes (of course), buy a car for yourself, pay for 4 years of school and send Mr. Belby, Ms. VerHeecke, and Mrs. Pischke on a vacation that would cost \$2000 for each teacher.

Answers will vary

Solve the following:

9) a. $\frac{x+6}{5} = \frac{x}{4}$

$x = 24$

b. $\frac{5(x-1)}{-3} \leq x + 1$

$x \geq \frac{1}{4}$

c. $8 + \frac{x}{-4} \geq 12$

$x \leq -16$

Convert:

10)a. 420,000 grams to tons

0.463 tons

b. 62 mph to feet per minute

5456 ft/min

11) Solve: A water treatment plant can filter about 1,400,000 gallons of water in 4 weeks. At this rate, how many gallons of water can be filtered in 7 days?

350,000 gal/7 days

12) Mrs. Musal loves shoes. She recently went on a shopping spree and spent \$609.90 buying sandals and tennis shoes. Sandals cost \$30 a pair and tennis shoes cost \$75 a pair and she paid \$39.90 on tax. Use the equation below to answer the following questions.

$$30s + 75t + 39.90 = 609.90$$

- What does the 75 represent in the context of the problem?
- What vocabulary work is used for 39.90?
- What does the 30s represent in the context of the problem?

} See teacher