

Algebra I Worksheet #3 Unit 3 Selected Solutions

Solve each of the following problems algebraically. For each problem, you **must**

- a. **represent** all unknowns in terms of the same variable,
- b. write an **equation** for the problem,
- c. **solve** your equation showing your steps neatly organized, and
- d. **answer** the question using a complete sentence.

5. Kim and Andy earned a total of \$600. The amount that Kim earned was \$30 less than two times the amount that Andy earned. How much did each person earn?

Andy: x

$$x + 2x \text{ ó } 30 = 600$$

Kim: $2x \text{ ó } 30$

$$3x \text{ ó } 30 = 600$$

Andy earned \$210, and

$$3x = 630$$

Kim earned \$390.

$$x = 210$$

$$2x \text{ ó } 30 = 390$$

8. The length of a rectangle is three inches less than twice the width. The perimeter of the rectangle is 42 inches. What are the dimensions of the rectangle?

$$2x \text{ ó } 3$$



$$2(2x \text{ ó } 3) + 2x = 42$$

$$4x \text{ ó } 6 + 2x = 42$$

The rectangle is 13 inches long and 8 inches wide.

$$6x \text{ ó } 6 = 42$$

$$P = 2L + 2W$$

$$6x = 48$$

$$x = 8$$

$$2x \text{ ó } 3 = 13$$

12. A collection of ordinary nickels and quarters is worth \$4.50. If the number of quarters is two more than three times the number of nickels, then how many coins of each type are there in the collection?

	number of coins	value of the coins
nickels	x	$5x \text{ ¢}$
quarters	$3x + 2$	$25(3x + 2) \text{ ¢}$
collection		450 ¢

$$5x + 25(3x + 2) = 450$$

$$5x + 75x + 50 = 450$$

$$80x + 50 = 450$$

$$80x = 400$$

$$x = 5$$

$$3x + 2 = 17$$

There are 5 nickels and 17 quarters.