

Algebra I Worksheet #7 Unit 9 selected solutions

2. The sum of two numbers is 60. The first number is 4 less than seven times the second. What are the numbers?

first number: x	$x + y = 60$	$(7y - 4) + y = 60$
second number: y	$x = 7y - 4$	$8y - 4 = 60$
		$8y = 64$
		$y = 8$
		$x = 7y - 4$
		$x = 56 - 4$
		$x = 52$

The first number is 52, and the second number is 8.

4. Paul invested \$5000, part at 3% per year and the rest at 5% per year. If the total interest for the year was \$196, then how much was invested at each rate?

Am't invested at 3% : x	$x + y = 5000$	$-3x - 3y = -15,000$
Am't invested at 5% : y	$.03x + .05y = 196$	$3x + 5y = 19,600$
		$2y = 4,600$
		$y = 2,300$
		$x = 2,700$

He invested \$2,700 at 3% and \$2,300 at 5%.

6. A chemist has one solution that is 60% acid and another that is 20% acid. How much of each solution should she use to make 100cc of a solution that is 35% acid?

Volume of the 60% sol. : x	$x + y = 100$	$-2x - 2y = -200$
Volume of the 20% sol. : y	$.6x + .2y = 35$	$6x + 2y = 350$
		$4x = 150$
		$x = 37.5$
		$y = 62.5$

She should use 37.5 cc of the 60% solution and 62.5 cc of the 20% solution.