General Algebra 2 Worksheet #5 Unit 3 selected solutions

1. The sum of two numbers is 8. The first number is one less than two times the second. What are the numbers?

first number : xx + y = 8(2y - 1) + y = 8second number : yx = 2y - 13y - 1 = 83y = 9y = 3x = 5

The first number is 5, and the second is 3.

3. The sum of two numbers is 8. Their difference is 2. What are the numbers?

first number : x	$\mathbf{x} + \mathbf{y} = 8$	
second number : y	$\mathbf{x} - \mathbf{y} = 2$	
	2x = 10	
	$\mathbf{x} = 5$	The numbers are 5 and 3.
	y = 3	

5. A coin collection consists of ordinary dimes and nickels and is worth a total of \$5. If there are 65 coins in the collection, then how many coins of each type are there?

Number of dimes: D	$\mathbf{D} + \mathbf{N} = 65$ (coins)	-5D - 5N = -325
Number of nickels: N	10D + 5N = 500 (c)	10D + 5N = 500
Value of the dimes: 10D (in cents)		5D = 175
Value of the nickels: 5N (in cents)		D = 35
There are 35 dimes and 30 nickels in the collection.		$\mathbf{N}=30$

9. Coffee worth \$1.30 per pound is mixed with coffee worth 90 cents per pound to produce a 50 pound blend worth \$1.14 per pound. How many pounds of each type of coffee is used? Note: The first equation gives the total number of pounds used, while the second equation gives the total value of the mixture in cents.

Am't worth \$1.30 per pound: x	x + y = 50 (pounds)	-90x - 90y = -4500
Am't worth 90¢ per pound: y	130x + 90y = 5700 (cents)	130x + 90y = 5700
The total value of x pounds at 130)¢ per pound is 130x (cents).	40x = 1200
The total value of y pounds at 90¢	é per pound is 90y (cents).	$\mathbf{x} = 30$
The total value of the mixture (50) lb. @ 114¢ per pound) is 5700 (ce	ents). $y = 20$

30 pounds of the coffee worth \$1.30 per pound should be mixed with 20 pounds of the coffee worth 90¢ per pound.