Algebra I Worksheet #6 Unit 9 selected solutions

2. The sum of two numbers is 100. The first number is two less than five times the second. What are the numbers?

first number : x **x + y = 100** **(5y – 2) + y = 100**
second number : y **x = 5y – 2** **6y – 2 = 100**
6y = 102
y = 17
The first number is 83, and the second is 17. **x = 83**

4. Coffee worth 80¢ per pound is mixed with coffee worth 50¢ per pound to produce a twenty pound blend worth 68¢ per pound. How many pounds of each type of coffee is used?

Am't of coffee @ 80¢ per pound: x **x + y = 20 (pounds)** **-5x – 5y = -100**
Am't of coffee @ 50¢ per pound: y **80x + 50y = 1360 (cents)** **8x + 5y = 136**
Note: 20 pounds @ 68¢ per per pound has a total value of 1360¢. **3x = 36**
Use 12 pounds @ 80¢ per pound and 8 pounds @ 50¢ per pound. **x = 12 and y = 8**

8. A collection of ordinary dimes and nickels is worth $6.65. The number of nickels is seven less than two times the number of dimes. How many coins of each type are in the collection?

Number of dimes: d **n = 2d – 7** **10d + 5(2d – 7) = 665**
Number of nickels: n **10d + 5n = 665** **10d + 10d – 35 = 635**
Value of the dimes: 10d (cents) **20d – 35 = 635**
Value of the nickels 5n (cents) **20d = 700**
There are 35 dimes and 63 nickels. **d = 35 and n = 63**

10. $5000 is to be divided between two people so that one receives $500 more than twice what the other receives. How much will each person receive?

Am't received by one person: x **x + y = 5000** **x + (2x + 500) = 5000**
Am't received by other person: y **y = 2x + 500** **3x + 500 = 5000**
3x = 4500
One receives $1500, and the other receives $3500. **x = 1500**
y = 3500