Algebra II Worksheet #7 Unit 2 selected solutions

Solve each of the problems algebraically. **Use a system of 2 equations with 2 variables.**

2. When Harry rows with the current, he can row 24 miles in 3 hours. When he rows against the same current, he can row only 18 miles in 4 hours. Find the speed of the current and Harry's rowing rate in still water (assuming both are constant).

r : Harry's rowing rate **c : speed of the current**

	rate (mph)	time (hr.)	distance (mi.)
with the current	**r + c**	**3**	**24**
against the current	**r – c**	**4**	**18**

3(r + c) = 24 **3r + 3c = 24**

4(r – c) = 18 **4r – 4c = 18**

12r + 12c = 96	**12r + 12c = 96**
12r – 12c = 54	**-12r + 12c = -54**
24r = 150	**24c = 42**
r = 6.25	**c = 1.75**

Harry's rowing rate is 6.25 mph, and the speed of the current is 1.75 mph.

7. Five pizzas and three liters of soda cost $19.60. Eight pizzas and 4 liters of soda cost $30.40. What is the cost of one pizza? What is the cost of one liter of soda?

cost of 1 pizza : x cents **5x + 3y = 1960**

cost of 1 soda : y cents **8x + 4y = 3040**

-20x – 12y = -7840	**40x + 24y = 15,680**
24x + 12y = 9120	**-40x – 20y = -15,200**
4x = 1280	**4y = 480**
x = 320	**y = 120**

A pizza costs $3.20, and a liter of soda costs $1.20.