Mathematics 10D

S.O.L.E Word Problems

Mr. D. Hagen

1) Beth and Julio are selling pies for a school fundraiser. Customers can buy cherry pies and pumpkin pies. Beth sold 3 cherry pies and 10 pumpkin pies for a total of $152. Julio sold 3 cherry pies and 13 pumpkin pies for a total of $194. Find the cost each of one cherry pie and one pumpkin pie.

✓Let: x = cherry y = pumpkin

✓Beth: $3x + 10y = 152$

✓Julio $-3x + 13y = 194$

$-3y = -42$

$y = 14$

$3x + 10(14) = 152$

$3x = 12$

$x = 4$

∴ ✓The cherry pie cost $4 and the pumpkin $14.

2) The school that Jacob goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 91 senior citizen tickets and 50 child tickets for a total of $1824. The school took in $828 on the second day by selling 12 senior citizen tickets and 60 child tickets. What is the price each of one senior citizen ticket and one child ticket?

Let: x = senior y = child

Day 1: $91x + 50y = 1824$

Day 2: $12x + 60y = 828$

$x + 5y = 69$

$x = 69 - 5y$

$91(69 - 5y) - 50y = 1824$

$-405y = -4455$

$y = 11$

$x = 69 - 5(11)$

$x = \$14$

∴ the senior ticket cost $14 and the child ticket cost $11.

3) Mixed nuts which cost \$7/kg are made by combining walnuts which cost \$12/kg with peanuts which cost \$2/kg. Find the number of kg of walnuts and peanuts required to make 8 kg of mixed nuts.

Let: x = kg of walnuts y = kg of peanuts

Weight: $x + y = 8$

Cost: $12x + 2y = 7(8)$

$-(2x + 2y = 16)$

$10x = 40$

$x = 4$

∴ We need 4 kg of walnuts and 4 kg of peanuts

4) Beth wants to make 14 fl. oz. of a 17% acid solution by mixing together a 12% acid solution and a 26% acid solution. How much of each solution must she use?

Let: x = fl. oz of 12% $\quad$ y = fl. oz. of 26%

Volume: $x + y = 14$

Solution: $12x + 26y = 17(14)$

$-(12x + 12y = 168)$

$14y = 70$

$y = 5$

∴ Beth needs 9 fl. oz. of the 12% and 5 fl. oz. of the 26%