

5.3 Linear Combinations

- 1)
 a) \$2.80 per pound
 b) peanuts
- 3)
 b) Let x and y be the respective volumes (L) of the 15% and 40% solutions.
 $x + y = 30$
 c) $0.15x + 0.40y = 0.25(30)$
- 7)
 a) Let x be the amount of chocolate raspberry beans (lbs)
 Let y be the amount of French vanilla coffee beans (lbs)
- b)
- | | Amount of coffee beans (lbs) | Price per lb (\$) | Total (\$) |
|----------------------------|------------------------------|-------------------|------------|
| Chocolate Raspberry | x | 4 | $4x$ |
| French Vanilla | y | 6 | $6y$ |
| Totals | 3 | | 13 |
- c) $x + y = 3 \rightarrow y = 3 - x$
 $4x + 6y = 13$
- d) There are 2.5 lbs of chocolate raspberry beans and 0.5 lbs of French vanilla beans in the mix.
- 9)
 b) Let x be the amount (in mL) of 10% solution in the mixed solution.
 Let y be the amount (in mL) of 40% solution in the mixed solution.
 c) $x + y = 600$
 $0.10x + 0.40y = (0.31)(600)$ or $0.10x + 0.40y = 186$
- d) 180 mL of the 10% solution and 420 mL of the 40% solution were mixed to yield 600 mL of a 31% solution.
- 11)
 b) Let x be the time (in hrs) that Thelma drove.
 Let y be the time (in hrs) that Louise drove.
 $x + y = 6.5$
 $61x + 42y = 446$
- c) $x = 2$
 $y = 4.5$
- d) Thelma drove 2 hrs and Louise drove 4.5 hrs.
- 13)
 b) 520 ordinary seats were sold and 80 special seats were sold.

- 15) \$4100 was borrowed from the source requiring 7.5% interest and \$1500 was borrowed from the source requiring 11.25% interest.
- 17) about 4:20 PM
- 19) $x = -11.0$