

Use a system of linear equations to solve each problem. (3pts each)

1) At the movie theatre, the Clayton family bought 4 fountain drinks and 3 bags of popcorn and paid \$22.50. The Hanks family bought 5 fountain drinks and 2 bags of popcorn and paid \$23.75. How much is a fountain drink? How much is a bag of popcorn?

$$\begin{aligned} 2(4f + 3p &= 22.50) \\ 3(5f + 2p &= 23.75) \end{aligned}$$

$$\begin{aligned} 8f + 6p &= 45.00 \\ 15f + 6p &= 71.25 \end{aligned}$$

$$\begin{array}{r} 15f + 6p = 71.25 \\ - \quad 8f + 6p = 45.00 \\ \hline 7f = 26.25 \\ \div 7 \qquad \qquad \qquad 1 \div 7 \\ \hline f = 3.75 \end{array}$$

$$\begin{array}{r} 5f + 2p = 23.75 \\ 5(3.75) + 2p = 23.75 \\ 18.75 + 2p = 23.75 \\ -18.75 \qquad \qquad \qquad | \quad -18.75 \\ \hline 2p = 5 \\ p = 2.50 \end{array}$$

fountain drinks = \$3.75 and popcorn = \$2.50

2) At the gym, Cara burns 12 calories per minute on the elliptical and 10 calories per minute on the treadmill. If she worked out for one hour and burned 676 calories, how many minutes did she spend on the elliptical? How many on the treadmill? → 60 min.

$$\begin{aligned} 12e + 10t &= 676 \\ 10(e + t &= 60) \quad 10e + 10t = 600 \end{aligned}$$

$$\begin{array}{r} 12e + 10t = 676 \\ - \quad 10e + 10t = 600 \\ \hline 2e = 76 \\ \div 2 \qquad \qquad \qquad 1 \div 2 \\ \hline e = 38 \end{array}$$

$$\begin{array}{r} e + t = 60 \\ 38 + t = 60 \\ -38 \qquad \qquad \qquad | \quad -38 \\ \hline t = 22 \end{array}$$

Cara spent 38 minutes on the elliptical and 22 minutes on the treadmill

3) Ryan works out at the donut shop where he makes \$10.25 per hour. He also works part time at the school bookstore where he makes \$8.75 per hour. If he worked 20 hours last week and made \$196, how many hours did he work at the donut shop? At the bookstore?

$$10.25d + 8.75b = 196$$

$$8.75(d + b = 20) \quad 8.75d + 8.75b = 175$$

$$\begin{array}{r} 10.25d + 8.75b = 196 \\ - 8.75d + 8.75b = 175 \\ \hline 1.50d = 21 \\ \div 1.5 \quad \quad \quad \div 1.5 \\ \hline \end{array}$$

$$d = 14$$

$$d + b = 20$$

$$\begin{array}{r} 14 + b = 20 \\ -14 \quad \quad \quad -14 \\ \hline b = 6 \end{array}$$

Ryan worked 14 hours at the donut store and 6 hours at the bookstore.

4) In their last game, the basketball team scored a total of 86 points. If they made a total of 39 two-point baskets and three-point baskets, how many three-point shots did they make?

$$2x + 3y = 86$$

$$2(x + y = 39) \quad 2x + 2y = 78$$

$$\begin{array}{r} 2x + 3y = 86 \\ - 2x + 2y = 78 \\ \hline y = 8 \end{array} \quad \left| \quad \begin{array}{r} x + y = 39 \\ x + 8 = 39 \\ - 8 \quad \quad - 8 \\ \hline x = 31 \end{array}$$

They scored 31 two-point baskets and 8 three-point baskets.