Section 7.1

1) This example will help you do exercises 1-2 on p. 276.
Determine whether the given ordered pair is a solution of the system of equations:
   \[(2, 1)\]
   \[2x - y = 3\]
   \[x - 3y = 4\]
Examples 2b-5 will help you do exercises 3-14 on p. 276.

2) Solve \[
\begin{cases}
\quad \begin{align*}
3x+2y &= 8 \\
-x + y &= 0
\end{align*}
\end{cases}
\]
a) by the graphing method
b) by the substitution method
c) by the elimination method

3) Solve \[
\begin{cases}
\quad \begin{align*}
4x+3y &= 7 \\
5x - 2y &= 1
\end{align*}
\end{cases}
\]
by elimination

4) Solve \[
\begin{cases}
\quad \begin{align*}
x + y &= 3 \\
3x + 3y &= 7
\end{align*}
\end{cases}
\]

5) Solve \[
\begin{cases}
\quad \begin{align*}
2x - y &= 1 \\
-4x + 2y &= -2
\end{align*}
\end{cases}
\]

6) This example will help you do exercises 16-19 on p. 276.
Solve \[
\begin{cases}
\quad \begin{align*}
-\frac{1}{3}x + \frac{2}{3}y &= \frac{4}{3} \\
-\frac{x}{2} + y &= \frac{1}{3}
\end{align*}
\end{cases}
\]

7) This example will help you do exercise 44 on p. 277.
Lissette has invested $7200 in PECO and LEGO stock. The PECO stock currently sells for $40 a share and the LEGO stock for $10 a share. If PECO stock goes up 50% in value and LEGO stock doubles, her stock will be worth $11,400. How many shares of each stock does she own?

8) This example will help you do exercise 48 on p. 278.
A souvenir store sells t-shirts for $12 and baseball caps for $15. Its entire stock is worth $4200. If only half the shirts and one-third of the caps are sold, the resulting revenue is $1800. How many t-shirts and caps are left in the store?

Section 8.1

1) Write a system of inequalities that describes all the conditions and graph the feasible region of the system:
Carmella and Maria produce homemade rugs and afghans. They spin the yarn, dye it, and then weave it. A rug requires 3 hours of spinning, 1 hour of dyeing, and 10 hours of weaving. An afghan needs 3 hours of spinning, 3 hours of dyeing, and 3 hours of weaving. Together, they spend at most 12 hours per week spinning, 9 hours dyeing, and 30 hours weaving. Let x = the number of rugs produced per week and y= the number of afghans produced per week.
Section 8.3

1) Mandy has just completed the study of linear programming and plans to use his knowledge in his personal investments. He plans to invest up to $40,000 in either corporate or municipal bonds or both. The least he is allowed to invest in corporate bonds is $6000 and he does not want to invest more than $22,000 in corporate bonds. He does not want to invest more than $30,000 in municipal bonds. The interest on corporate bonds is 8% and on municipal bonds is 7 ½ %. This is simple interest for one year. How much should he invest in each type of bond in order to maximize his income? What is the maximum income?

2) Suppose it takes 12 units of carbohydrates and 8 units of protein to satisfy the minimum weekly requirements for a certain person. A certain meat contains 2 units of protein and 6 units of carbohydrates in each pound. A certain cheese contains 2 units of protein and 2 units of carbohydrates in each pound. The meat costs $1.50 per pound and the cheese costs $1 per pound. How many pounds of each are needed in order to minimize cost and still meet the minimum dietary requirements?

3) A farm consists of 240 acres of cropland. The farmer wishes to plant this acreage in corn or oats. Profit per acre in corn production is $40 and that in oats is $30. An additional restriction is that the total hours of labor during the production period cannot exceed 320. Each acre of land in corn production requires 2 hours of labor during the production period, whereas production of oats requires 1 hour per acre. Determine how the land should be divided between corn and oats in order to give maximum profit?