

P-15 Find the intersection point of each of the following pairs of lines. Be sure to follow the method used in the example problem.

$$1. \begin{array}{r} x + y = 2 \\ x - y = 2 \\ \hline 2x = 4 \\ x = 2 \end{array}$$

$$2 + y = 2 \text{ so } y = 0$$

int. pt. is (2, 0)

$$2. \begin{array}{r} x + y = 2 \\ x - y = 0 \\ \hline 2x = 2 \\ x = 1 \end{array}$$

$$1 + y = 2 \text{ so } y = 1$$

int. pt. is (1, 1)

$$3. \begin{array}{r} 2x - y = 6 \\ x + y = 6 \\ \hline 3x = 12 \\ x = 4 \end{array}$$

$$8 - y = 6 \text{ so } -y = -2 \text{ so } y = 2$$

int. pt. is (4, 2)

$$4. \begin{array}{r} 2x - y = 6 \\ x + 2y = 8 \\ \downarrow \end{array}$$

$$\begin{array}{r} 2x - y = 6 \\ 2x + 4y = 16 \\ \hline -5y = -10 \\ y = 2 \end{array}$$

int. pt. is (4, 2)

$$\begin{array}{r} 2x - 2 = 6 \\ 2x = 8 \\ x = 4 \end{array}$$

$$5. \begin{array}{r} 3x + 2y = 12 \\ x + y = 5 \\ \rightarrow \\ \begin{array}{r} 3x + 2y = 12 \\ -2x + 2y = 10 \\ \hline x = 2 \\ 2 + y = 5 \text{ so } y = 3 \end{array} \end{array}$$

int. pt. is (2, 3)

$$6. \begin{array}{r} 5x - 2y = 20 \\ x - y = 1 \\ \rightarrow \\ \begin{array}{r} 5x - 2y = 20 \\ -2x + 2y = -2 \\ \hline 3x = 18 \\ x = 6 \\ \text{so } 30 - 2y = 20 \\ -2y = -10 \\ y = 5 \end{array} \end{array}$$

int. pt. is (6, 5)

$$7. \begin{array}{r} 8x + 4y = 36 \\ 3x + 2y = 15 \\ \rightarrow \\ \begin{array}{r} 8x + 4y = 36 \\ 6x + 4y = 30 \\ \hline 2x = 6 \\ x = 3 \\ 24 + 4y = 36 \text{ so } 4y = 12 \\ y = 3 \end{array} \end{array}$$

int. pt. is (3, 3)

$$8. \begin{array}{r} 5x + 3y = 8 \\ 3x + 2y = 5 \\ \rightarrow \\ \begin{array}{r} 15x + 9y = 24 \\ 15x + 10y = 25 \\ \hline -y = -1 \\ y = 1 \\ \text{so } 5x + 3 = 8 \\ 5x = 5 \\ x = 1 \end{array} \end{array}$$

int. pt. is (1, 1)

Doris Rosebudd raises daisies and petunias on all five acres of her farm. Each day she weeds the weeds for seven hours. Each acre of daisies takes two hours to weed while each acre of petunias takes only one hour.

9. Let x be the number of acres of daisies and y be the number of acres of petunias. Find relations between x, y and the size of Rosebudd's farm and between x, y and the time she weeds the weeds.

$$\text{size of farm: } x + y = 5$$

$$\text{time weeding: } 2x + y = 7$$

10. How many acres of each flower does she raise?

$$\begin{array}{r} 2x + y = 7 \\ x + y = 5 \\ \hline x = 2 \end{array} \text{ so } \begin{array}{r} 2 + y = 5 \\ y = 3 \end{array}$$

2 acres of daisies
and 3 acres of petunias