Name _____ Date _____ Class _____

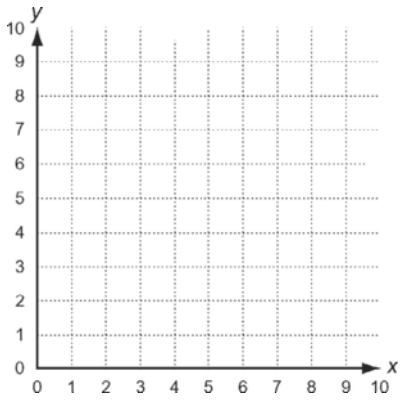
LESSON 3-4

Practice A

Linear Programming

Maximize or minimize each objective function.

1. Maximize $P = 2x + y$ for the constraints $\begin{cases} x \geq 0 \\ y \geq 0 \\ x + y \leq 6 \end{cases}$



   a. Graph the constraints.

   b. Write the vertices of the feasible region.

   _____

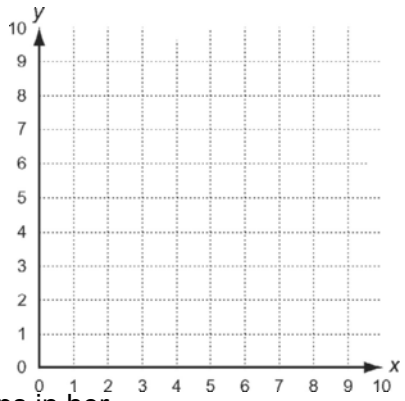
   c. Use the table to evaluate P for the x- and y-values at each vertex.

x	y	$P = 2x + y$

   d. Compare the values for P. Write the coordinate pair that gives the maximum value.

   _____

2. Minimize $P = 4x + 3y$ for the constraints $\begin{cases} x \leq 4 \\ y \leq 6 \\ x + y \geq 7 \end{cases}$



_____

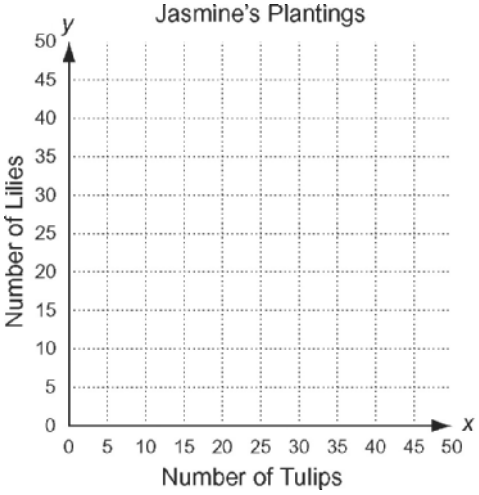
Solve.

3. Jasmine is planting a maximum of 40 bulbs of lilies and tulips in her backyard. She wants more tulips, x, than lilies, y.

   a. Write a system of inequalities.

   _____

   b. Graph the system.



   c. What is the maximum number of lily bulbs Jasmine could plant?

   _____

   d. What is the minimum number of tulip bulbs Jasmine could plant?

   _____

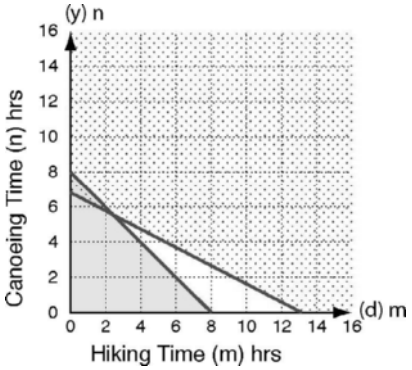
Problem Solving

1. a.

Hiking Time (m)	Canoeing Time (n)	Total Miles per day
1	7	45
2	6	42
3	5	39
4	4	36
5	3	33

b. They can hike for 1 h and canoe for 7 h, or they can hike for 2 h and canoe for 6 h.

2. a. $\begin{cases} 3m + 6n \geq 40 \\ m + n \leq 8 \end{cases}$

b. 

c. Possible answer: Where the shadings over lap is the region containing all possible solutions of the inequalities.

d. Possible answer: (0, 8)

3. A

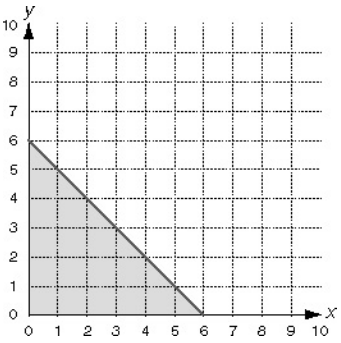
4. D

Reading Strategies

1. Possible answer: Substitute the x- and y-coordinates for x and y in the two inequalities. Both inequalities must be satisfied for that ordered pair to be a solution of the system.
2. Substitute 3 for x and 2 for y in both inequalities; no, it is not a solution.
3. Possible answer: In both cases, you are finding the ordered pair or pairs that satisfy the equations or inequalities by graphing.
4. Possible answer: The lines in a system of inequalities can be solid or dashed, and it is also necessary to shade areas above or below the lines.
5. Possible answer: It is the region of intersection of two shaded areas on the graph.
6. Possible answer: You use a dashed line when the symbol is $<$ or $>$ but a solid line when the symbol is $\leq$ or $\geq$. The solid line has points included in the solution, but the points on a dashed line are not included in the solution.

LESSON 3-4

Practice A

1. a. 

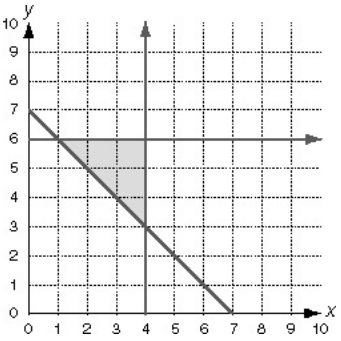
b. (0, 6), (6, 0), (0, 0)

c.

x	y	$P = 2x + y$
0	0	0
0	6	6
6	0	12

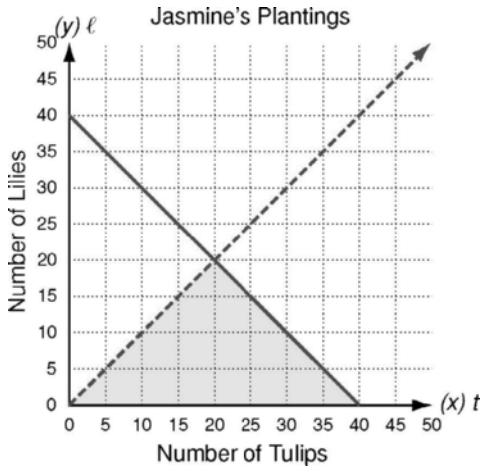
d. (6, 0)

2. (1, 6)



3. a. $\begin{cases} x \geq 0 \\ y \geq 0 \\ x + y \leq 40 \\ y < x \end{cases}$

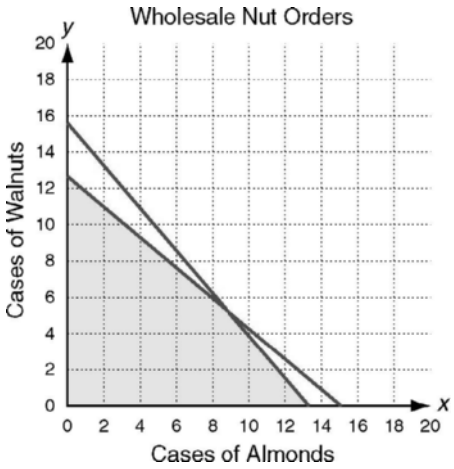
b.



c. 19

d. 1

b.

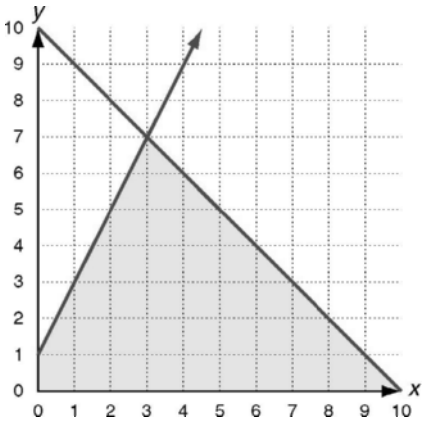


c. $P = 17x + 15y$

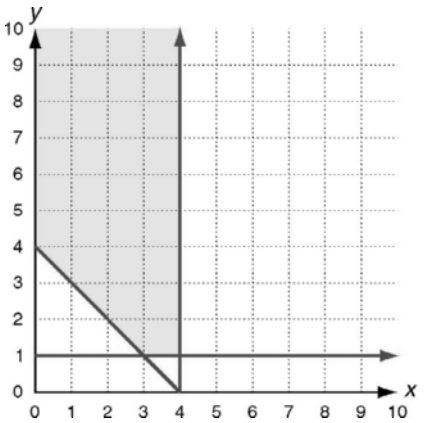
d. 9 cases of almonds, 5 cases of walnuts

Practice B

1. (10, 0)



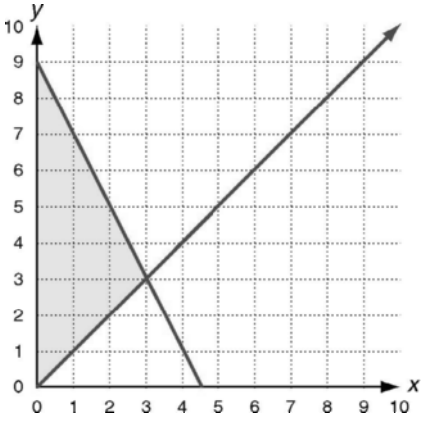
2. (3, 1)



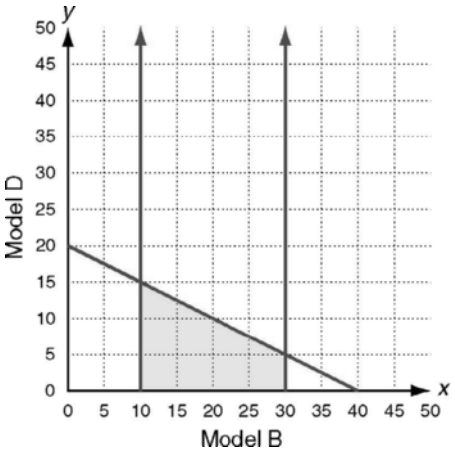
3. a. $\begin{cases} x \geq 0 \\ y \geq 0 \\ 20x + 24y \leq 300 \\ 30x + 26y \leq 400 \end{cases}$

Practice C

1. (0, 9)



2. 30 of Model B and 5 of Model D



3. 20 experienced, 0 inexperienced