**LESSON**
**3-4**

# Practice B
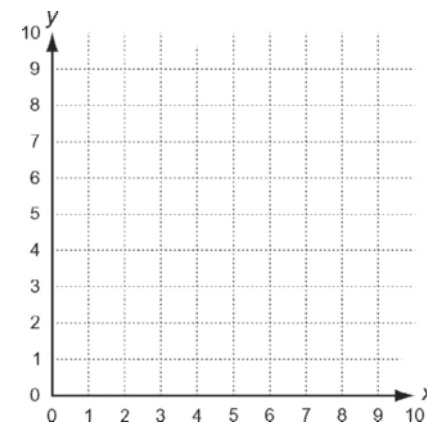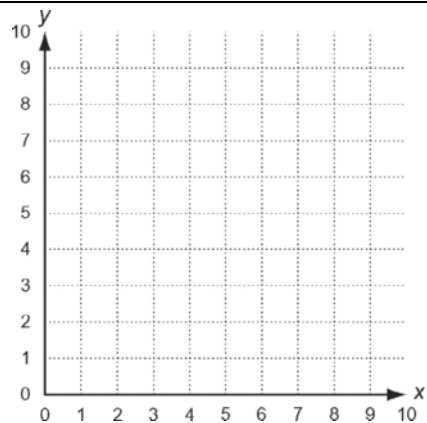
*Linear Programming*

**Maximize or minimize each objective function.**

1. Maximize $P = 5x + 2y$

   for the constraints $\begin{cases} y \geq 0 \\ x \geq 0 \\ y \leq -x + 10 \\ y \leq 2x + 1 \end{cases}$

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2. Minimize $P = 4x + 6y$

   for the constraints $\begin{cases} 0 \leq x \leq 4 \\ y \geq 1 \\ y \geq -x + 4 \end{cases}$
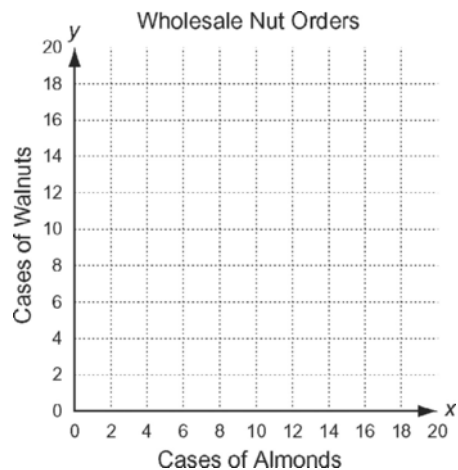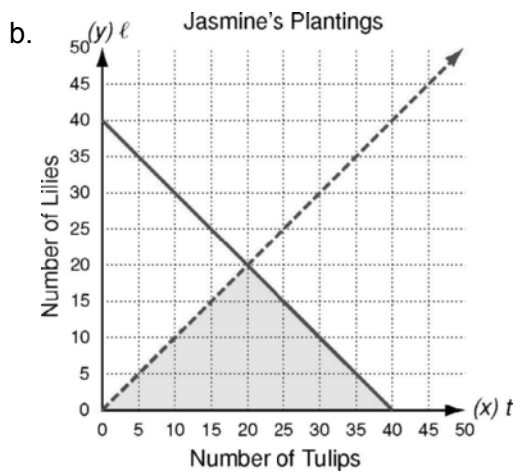
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**Solve.**

3. A grocer buys cases of almonds and walnuts. Almonds are packaged 20 bags per case. The grocer pays $30 per case of almonds and makes a profit of $17 per case. Walnuts are packaged 24 bags per case. The grocer pays $26 per case of walnuts and makes a profit of $15 per case. He orders no more than 300 bags of almonds and walnuts together at a maximum cost of $400.

   a. Write the constraints. Use *x* for the number of cases of almonds ordered and *y* for the number of cases of walnuts ordered.

   b. Graph the constraints.
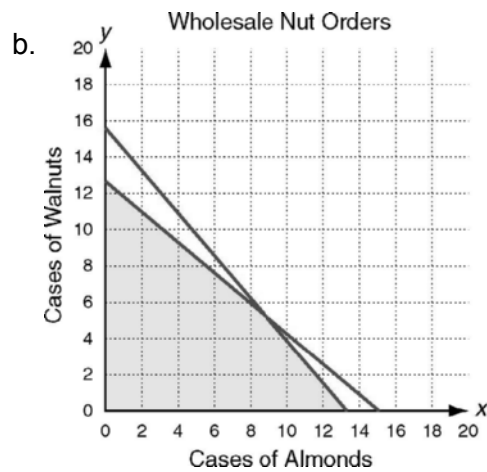
   c. Write the objective function for the profit.

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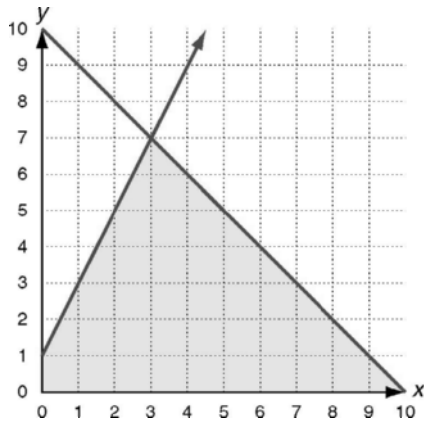   d. How many cases of almonds and walnuts maximize the grocer's profit?

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Holt Algebra 2

**b.**

Jasmine's Plantings



Number of Tulips

c. 19

d. 1

**b.**

Wholesale Nut Orders
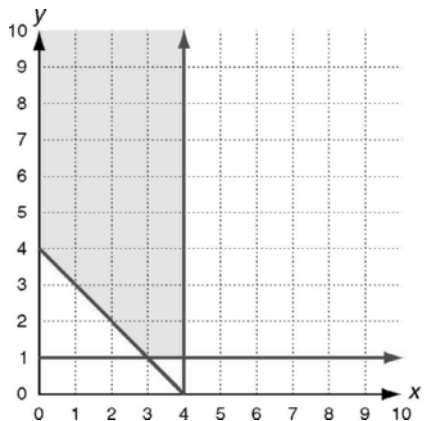


Cases of Almonds

c. $P = 17x + 15y$

d. 9 cases of almonds, 5 cases of walnuts
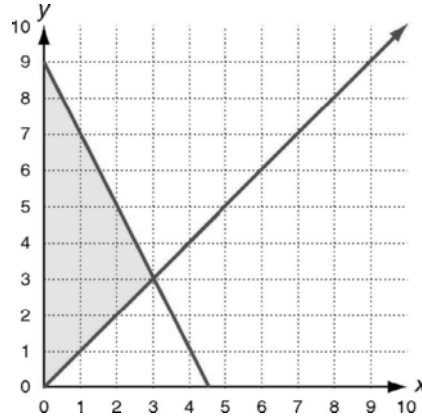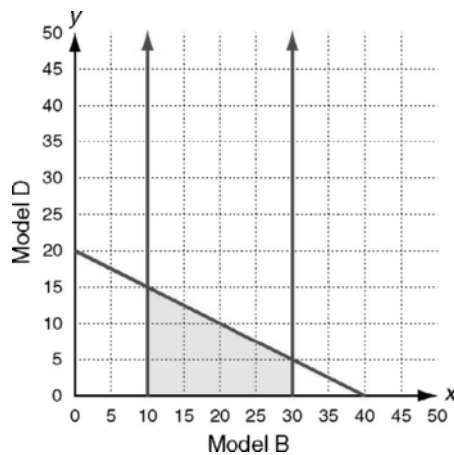
## Practice B

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



Model B

3. 20 experienced, 0 inexperienced

Holt Algebra 2