

Chapter 3 Take-Home Quiz #5

Form K

Lessons 3-1 through 3-4

Do you know HOW?

Solve each system by graphing.

1.
$$\begin{cases} y = 3x + 4 \\ y = 3x - 1 \end{cases}$$

2.
$$\begin{cases} 6x + 3y = -9 \\ -2x + 3y = 15 \end{cases}$$

3.
$$\begin{cases} 4x + y = 4 \\ y - x = 4 \end{cases}$$

Solve each system by substitution or elimination.

4.
$$\begin{cases} 2x - y = -8 \\ y = -4x + 2 \end{cases}$$

5.
$$\begin{cases} 2x - y = 5 \\ 3x + y = 5 \end{cases}$$

6.
$$\begin{cases} 3x - 2y = 2 \\ 3x + 4y = 50 \end{cases}$$

Do you UNDERSTAND?

7. The community theater is selling tickets to its play. An adult ticket costs \$12 and a child ticket costs \$8. The theater wants to take in at least \$2720 from ticket sales and has only 275 seats.

- Write a system of inequalities to model the situation.
- What is one possible combination of ticket sales that would satisfy the theater's goal?

8. **Reasoning** Is it possible for a dependent linear system to consist of two lines with different slopes?

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Do you know HOW?

Find the values of x and y that maximize or minimize the objective function for each graph.

1.
$$\begin{cases} y \leq -4x + 9 \\ 2y \leq -x + 11 \\ x \geq 0, y \geq 0 \end{cases}$$

Maximum for
 $P = 2x - 5y$

2.
$$\begin{cases} y \leq -2x + 5 \\ 2y \leq -8x + 16 \\ x \geq 0, y \geq 0 \end{cases}$$

Minimum for
 $P = x - 3y$

3.
$$\begin{cases} y \leq -\frac{1}{3}x + 7 \\ y \leq -2x + 12 \\ x \geq 0, y \geq 0 \end{cases}$$

Maximum for
 $P = -2x + 7y$