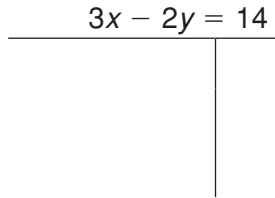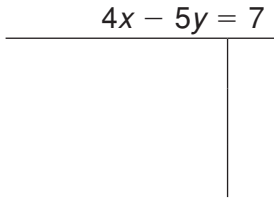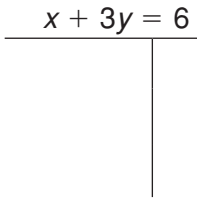# Practice B
6-1 *Solving Systems by Graphing*

Tell whether the ordered pair is a solution of the given system.

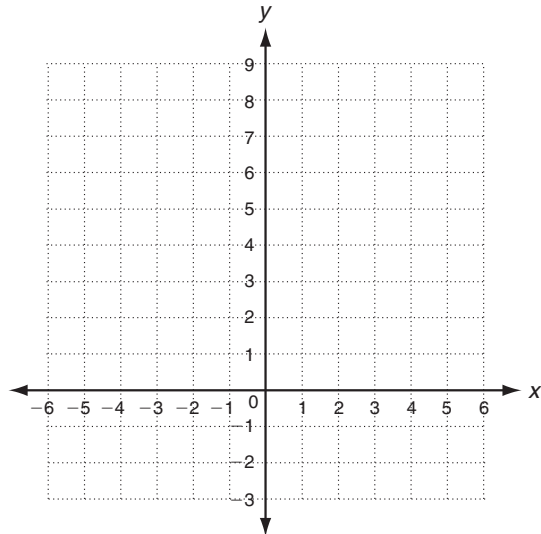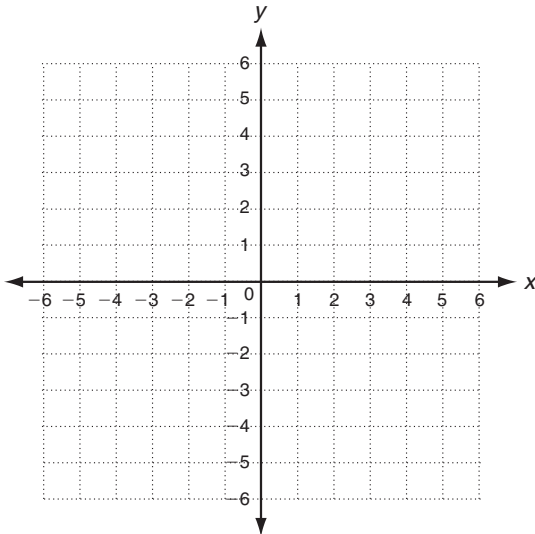**1.** $(3, 1)$; $\begin{cases} x + 3y = 6 \\ 4x - 5y = 7 \end{cases}$ _____

2. $(6, -2)$; $\begin{cases} 3x - 2y = 14 \\ 5x - y = 32 \end{cases}$ _____

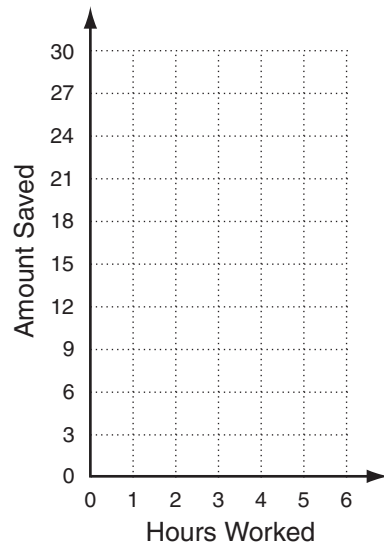| $x + 3y = 6$	$4x - 5y = 7$		$3x - 2y = 14$	$5x - y = 32$
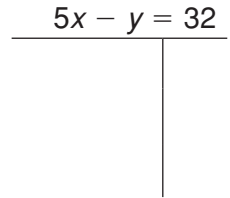
Solve each system by graphing. Check your answer.

3. $\begin{cases} y = x + 4 \\ y = -2x + 1 \end{cases}$ Solution: _____

4. $\begin{cases} y = x + 6 \\ y = -3x + 6 \end{cases}$ Solution: _____

5. Maryann and Carlos are each saving for new scooters. So far, Maryann has $9 saved, and can earn $6 per hour babysitting. Carlos has $3 saved, and can earn $9 per hour working at his family's restaurant. After how many hours of work will Maryann and Carlos have saved the same amount? What will that amount be?

_____

Holt Algebra 1

Complete the steps to determine whether the ordered pair is a solution of the given system. Circle ✓ or ✗ for each equation. Then, write *is* or *is not* to complete the sentence.

1. $(2, 4)$; $\begin{cases} x - y = -2 \\ 2x + y = 6 \end{cases}$

$\underline{x - y = -2}$

$\begin{array}{c|c} (2) - (4) & -2 \\ \underline{-2} & -2 \end{array}$

✓ or ✗ (circled ✓)

$\underline{2x + y = 6}$

$\begin{array}{c|c} 2(2) + (\boxed{4}) & 6 \\ (\boxed{4}) + (\boxed{4}) & 6 \\ (\boxed{8}) & 6 \end{array}$

✓ or ✗ (circled ✗)

$(2, 4)$ __is not__ a solution of the system.

2. $(1, -2)$; $\begin{cases} 2x + y = 0 \\ x + 4y = -7 \end{cases}$

$\underline{2x + y = 0}$

$\begin{array}{c|c} 2(1) + (-2) & 0 \\ (\boxed{2}) + (-2) & 0 \\ (\boxed{0}) & 0 \end{array}$

✓ or ✗ (circled ✓)

$\underline{x + 4y = -7}$

$\begin{array}{c|c} (1) + 4(\boxed{-2}) & -7 \\ (\boxed{1}) + (\boxed{-8}) & -7 \\ (\boxed{-7}) & -7 \end{array}$

✓ or ✗ (circled ✓)

$(1, -2)$ __is__ a solution of the system.

Solve each system by graphing. One of the lines has been graphed for you.

3. $\begin{cases} y = 3x - 5 \\ y = x - 3 \end{cases}$ Solution: __$(1, -2)$__

4. $\begin{cases} y = x + 7 \\ y = -2x - 2 \end{cases}$ Solution: __$(-3, 4)$__
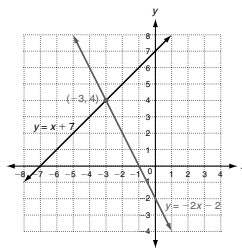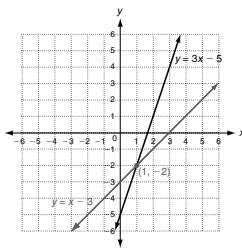
5. The Science Club needs to rent a bus for a field trip. Main Street Buses charges a $40 rental fee, plus $2 per mile. County Bus Line charges a $20 rental fee, plus $3 per mile. For what number of miles will the total charge be the same? What will that charge be?

__20 miles; $80__

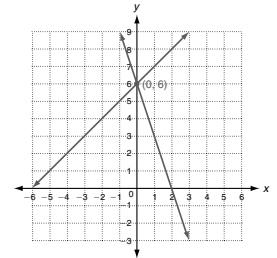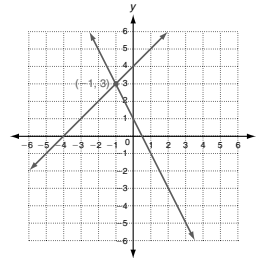**Tell whether the ordered pair is a solution of the given system.**

1. $(3, 1)$; $\begin{cases} x + 3y = 6 \\ 4x - 5y = 7 \end{cases}$ __yes__

$\underline{x + 3y = 6}$ $\underline{4x - 5y = 7}$

2. $(6, -2)$; $\begin{cases} 3x - 2y = 14 \\ 5x - y = 32 \end{cases}$ __no__

$\underline{3x - 2y = 14}$ $\underline{5x - y = 32}$

Solve each system by graphing. Check your answer.

3. $\begin{cases} y = x + 4 \\ y = -2x + 1 \end{cases}$ Solution: __$(-1, 3)$__

4. $\begin{cases} y = x + 6 \\ y = -3x + 6 \end{cases}$ Solution: __$(0, 6)$__

5. Maryann and Carlos are each saving for new scooters. So far, Maryann has $9 saved, and can earn $6 per hour babysitting. Carlos has $3 saved, and can earn $9 per hour working at his family's restaurant. After how many hours of work will Maryann and Carlos have saved the same amount? What will that amount be?
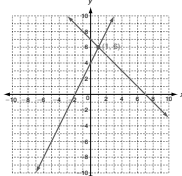
__2 hours; $21__
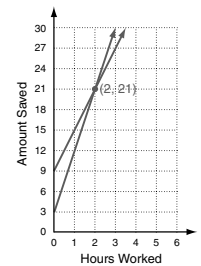
Tell whether the ordered pair is a solution of the given equation.

1. $(6, -2)$; $\begin{cases} 2x - y = 14 \\ x + 4y = -2 \end{cases}$ __yes__

2. $(4, 0)$; $\begin{cases} x - 2y = 4 \\ -x + y = -8 \end{cases}$ __no__

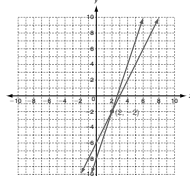3. $(-6, -2)$; $\begin{cases} 2x - y = -10 \\ -x + y = 4 \end{cases}$ __yes__

Solve each system by graphing.

4. $\begin{cases} y = 2x + 4 \\ y = -x + 7 \end{cases}$

Solution: __$(1, 6)$__

5. $\begin{cases} y = 2x - 6 \\ y = 3x - 8 \end{cases}$

Solution: __$(2, -2)$__

6. $\begin{cases} x + y = -2 \\ y = 4x - 7 \end{cases}$

Solution: __$(1, -3)$__

7. $\begin{cases} x = y + 2 \\ 2x = y \end{cases}$
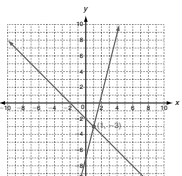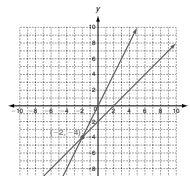
Solution: __$(-2, -4)$__

Use a graphing calculator to solve.

8. To sell an item in an online auction, WebAuctions charges a $5 listing fee plus 10% of the final selling price. AuctionsOnline charges a $3 listing fee plus 15% of the final selling price. For what final selling price do both companies charge the same amount? What will that amount be? __$40; $9__

You have checked to see if an ordered pair was a solution of an equation. Now you will check to see if an ordered pair is a solution of a system of equations.

Tell whether $(1, 9)$ is a solution of $\begin{cases} x + y = 10 \\ 3x + y = 12 \end{cases}$

Step 1: Substitute $(1, 9)$ into one of the equations.

$(1, 9)$ means that $x = 1$ and $y = 9$.

$x + y \overset{?}{=} 10$

$1 + 9 \overset{?}{=} 10$

$10 \overset{?}{=} 10$ ✓

Solution checks. Continue with Step 2

Step 2: Substitute $(1, 9)$ into the other equation.

$3x + y = 12$

$3(1) + 9 \overset{?}{=} 12$

$3 + 9 \overset{?}{=} 12$

$12 \overset{?}{=} 12$ ✓

The ordered pair makes both equations true. So $(1, 9)$ is a solution of the system.

Tell whether $(2, -3)$ is a solution of $\begin{cases} x + y = 5 \\ 2x + 5y = -11 \end{cases}$

Step 1: Substitute $(2, -3)$ into one of the equations.

$x + y = 5$

$2 + -3 \overset{?}{=} 5$

$-1 \overset{?}{=} 5$ ✗

Stop! There is no need to check the other equation. The ordered pair is not a solution of the system.

Tell whether the ordered pair is a solution of the given system.

1. $(0, -4)$; $\begin{cases} x + 2y = -8 \\ x = 4 + y \end{cases}$

__yes__

2. $(2, 5)$; $\begin{cases} x + y = 7 \\ 3x + y = 10 \end{cases}$

__no__

3. $(-3, 1)$; $\begin{cases} 2x + y = 5 \\ x + 3y = -6 \end{cases}$

__no__

4. $(-3, 9)$; $\begin{cases} y = x + 12 \\ y = -3x \end{cases}$

__yes__