KEY CONCEPT *For Your Notebook*

Solving a Linear System Using the Graph-and-Check Method

STEP 1 **Graph** both equations in the same coordinate plane. For ease of graphing, you may want to write each equation in slope-intercept form.

STEP 2 **Estimate** the coordinates of the point of intersection.

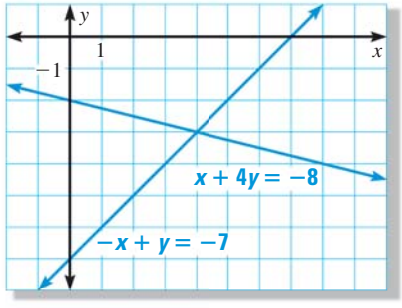
STEP 3 **Check** the coordinates algebraically by substituting into each equation of the original linear system.

EXAMPLE 2 Use the graph-and-check method

Solve the linear system: $-x + y = -7$ Equation 1
$x + 4y = -8$ Equation 2

Solution

STEP 1 **Graph** both equations.



STEP 2 **Estimate** the point of intersection. The two lines appear to intersect at $(4, -3)$.

STEP 3 **Check** whether $(4, -3)$ is a solution by substituting 4 for x and -3 for y in each of the original equations.

Equation 1

$-x + y = -7$

$-(4) + (-3) \stackrel{?}{=} -7$

$-7 = -7$ ✓

Equation 2

$x + 4y = -8$

$4 + 4(-3) \stackrel{?}{=} -8$

$-8 = -8$ ✓

▶ Because $(4, -3)$ is a solution of each equation, it is a solution of the linear system.

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GUIDED PRACTICE for Examples 1 and 2

Solve the linear system by graphing. Check your solution.

1. $-5x + y = 0$
$5x + y = 10$

2. $-x + 2y = 3$
$2x + y = 4$

3. $x - y = 5$
$3x + y = 3$