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Graphing Systems of Equations

system of equations: more than one

consistent: graphs intersect

independent: exactly one solution

dependent: infinitely many solutions

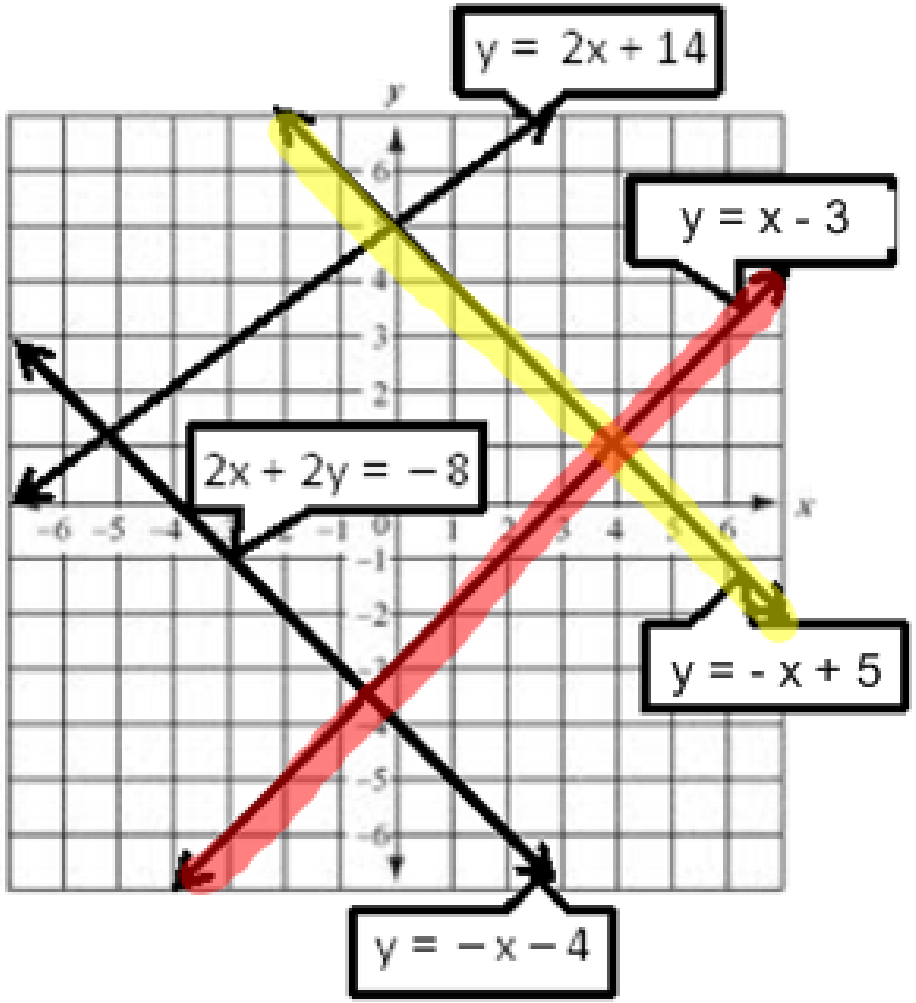
inconsistent: no solutions that work for both

Use the graph at the right to determine whether each system has *no* solution, *one* solution, or *infinitely many* solutions.

Ex: $y = -x + 5$

$y = x - 3$

one

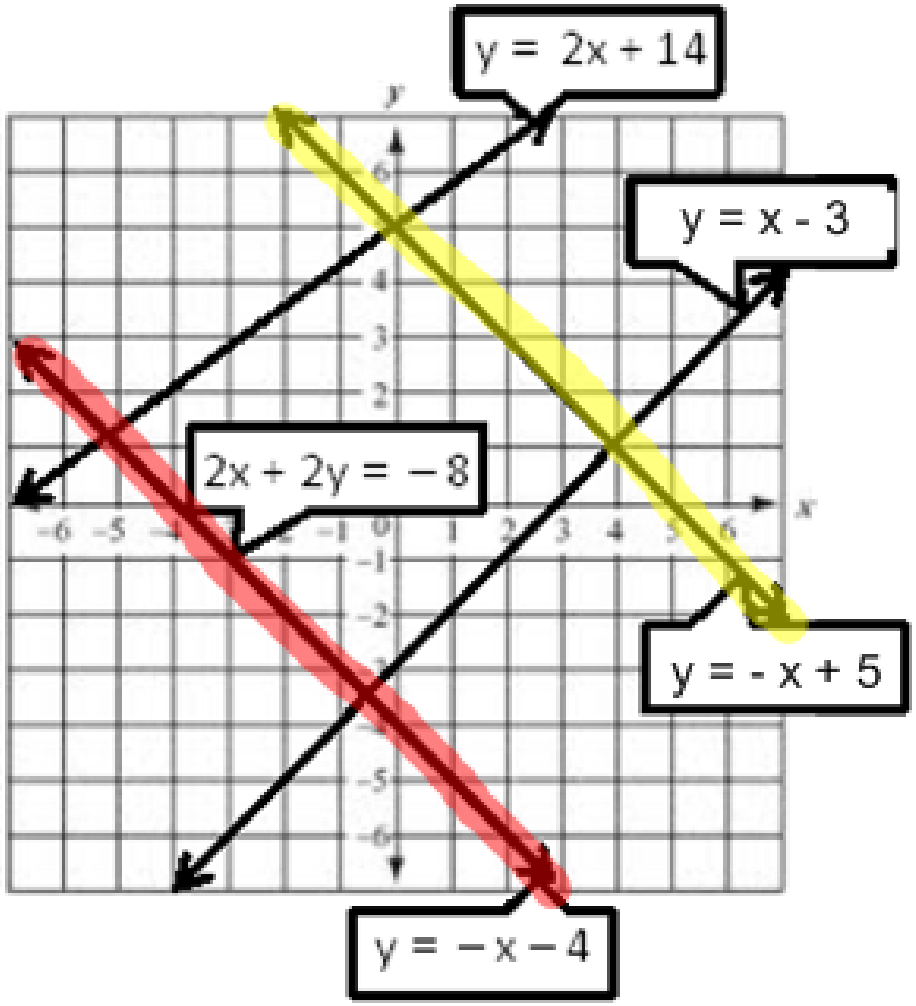


Use the graph at the right to determine whether each system has *no* solution, *one* solution, or *infinitely many* solutions.

Ex: $y = -x + 5$

$2x + 2y = -8$

none



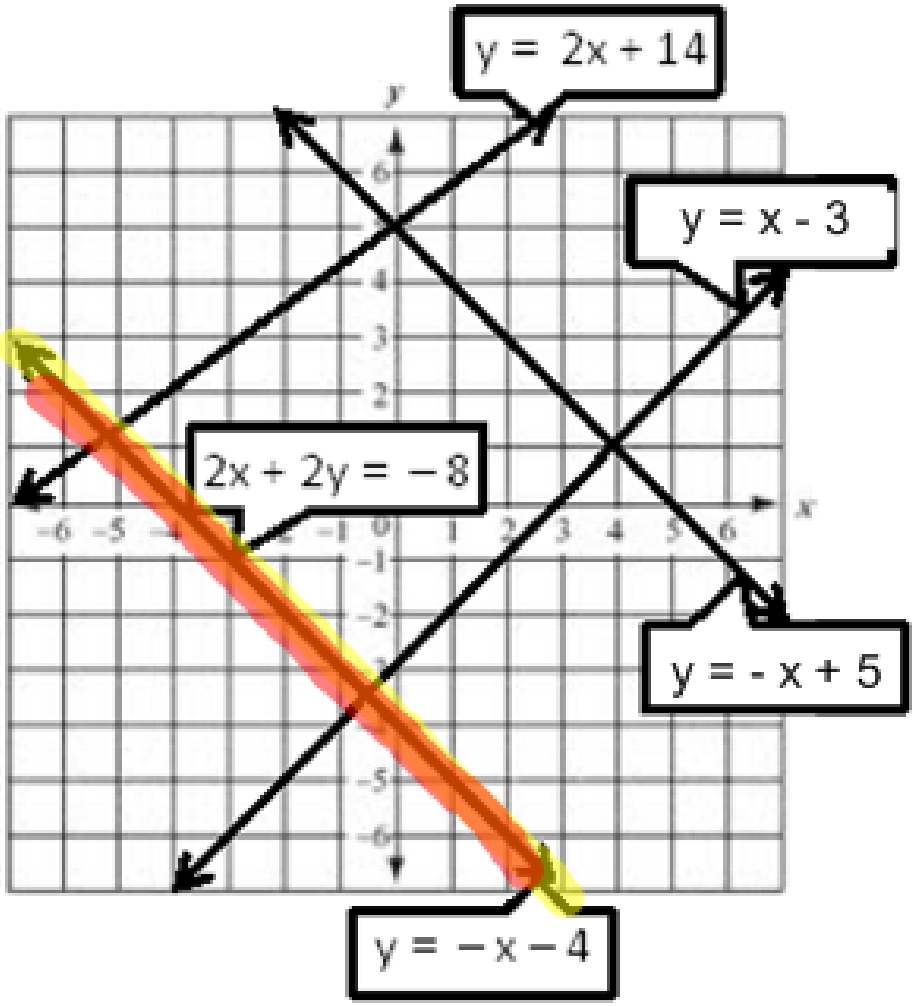
Use the graph at the right to determine whether each system has *no* solution, *one* solution, or *infinitely many* solutions.

Ex: $\frac{2x}{2} + \frac{2y}{2} = \frac{-8}{2}$

$y = -x - 4$

(-4)

infinitely many



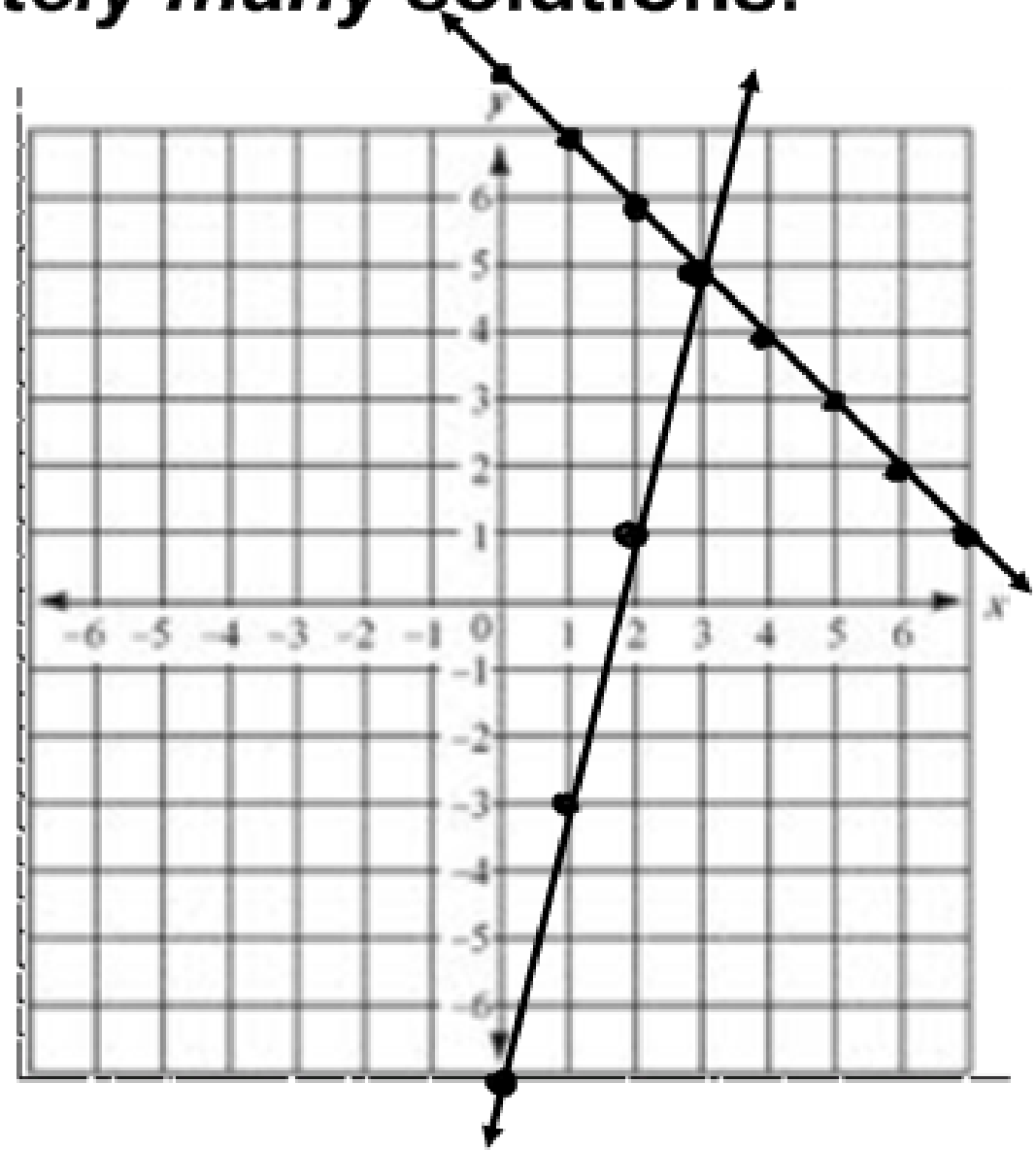
Graph each system of equations. Then determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions.

Ex: $y = -x + 8$

$y = 4x - 7$

One

(3, 5)



Graph each system of equations. Then determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions.

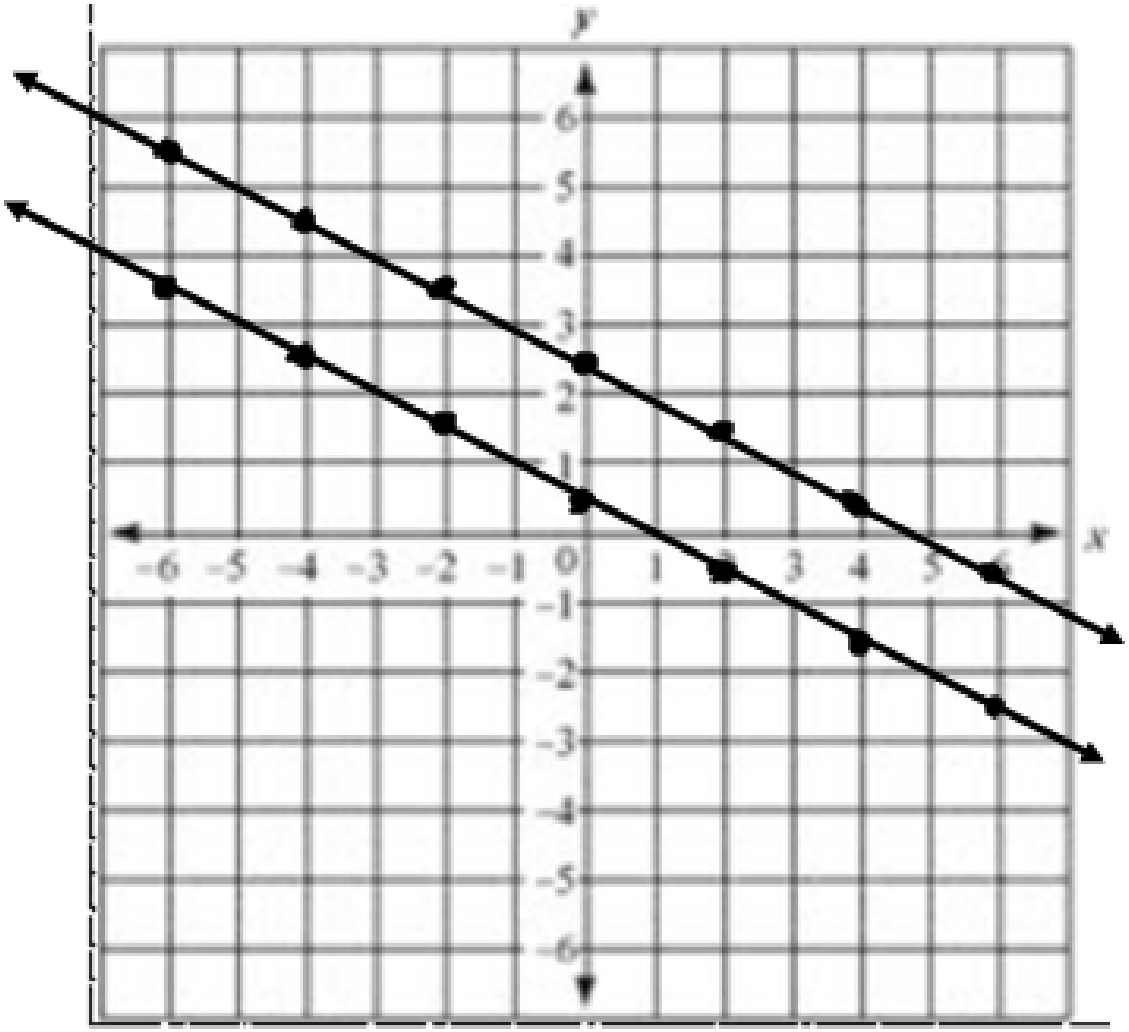
Ex: $x + 2y = 5$

$2x + 4y = 2$

$y = -\frac{1}{2}x + \frac{5}{2}$

$y = -\frac{1}{2}x + \frac{1}{2}$

no solution



$x + 2y = 5$

$-x \qquad -x$

$\frac{2y}{2} = \frac{-x}{2} + \frac{5}{2}$

$y = -\frac{1}{2}x + \frac{5}{2}$

$2x + 4y = 2$

$-2x \qquad -2x$

$\frac{4y}{4} = \frac{-2x}{4} + \frac{2}{4}$

$y = -\frac{1}{2}x + \frac{1}{2}$

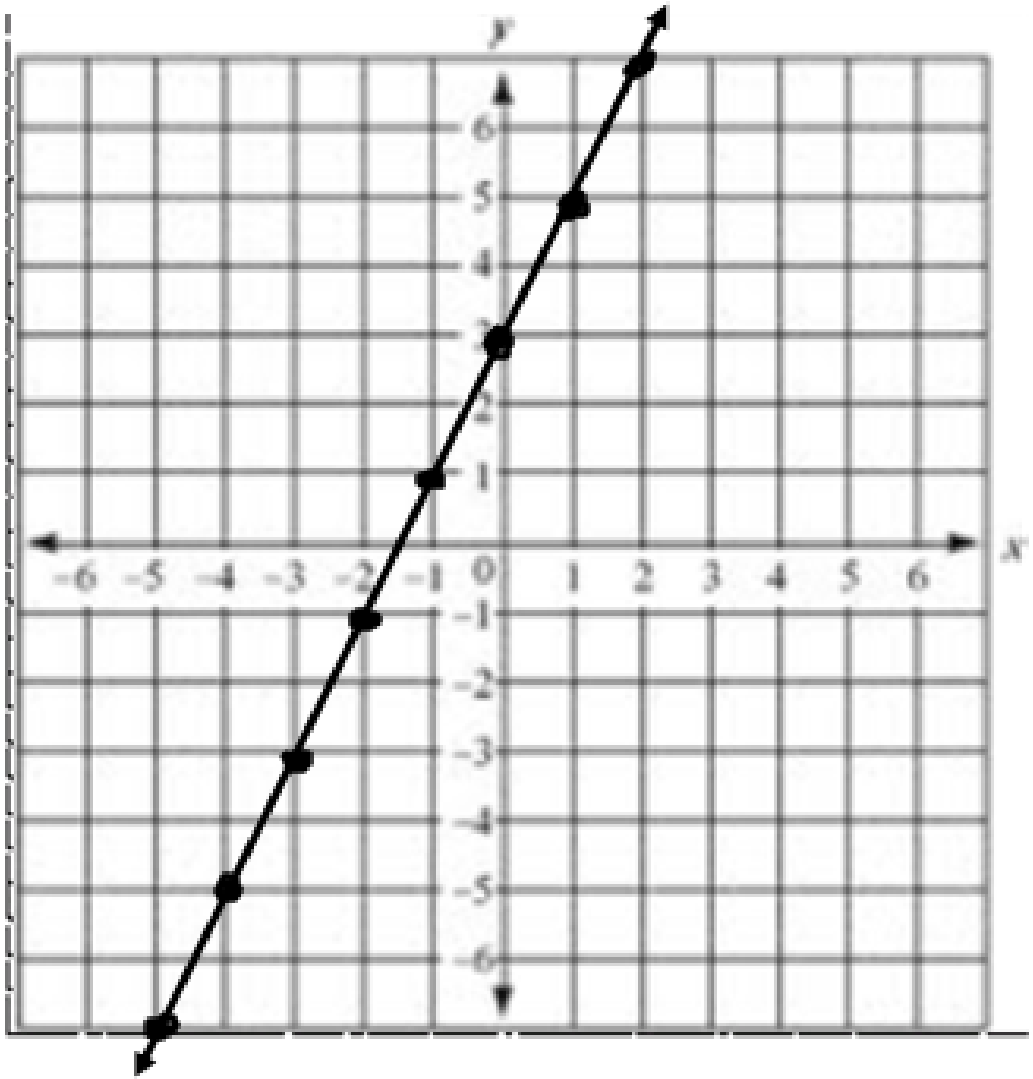
Graph each system of equations. Then determine whether the system has *no* solution, *one* solution, or *infinitely many* solutions.

Ex: $2x - y = -3$
$8x - 4y = -12$

$y = 2x + 3$

$y = 2x + 3$

infinitely many



$$2x - y = -3$$

$$-2x \qquad -2x$$

$$-y = -2x - 3$$

$$\boxed{y = 2x + 3}$$

$$8x - 4y = -12$$

$$-8x \qquad -8x$$

$$\frac{-4y}{-4} = \frac{-8x - 12}{-4} \qquad -4$$

$$\boxed{Y = 2x + 3}$$

Homework:

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