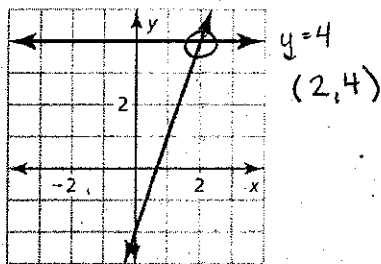


5.5

Practice

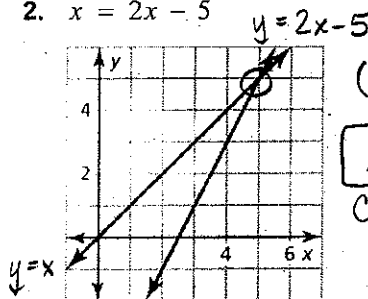
In Exercises 1 and 2, use the graph to solve the equation. Check your solution.

1. $3x - 2 = 4$



$x = 2$ Check: $3(2) - 2 = 4$
 $6 - 2 = 4$
 $4 = 4 \checkmark$

2. $x = 2x - 5$

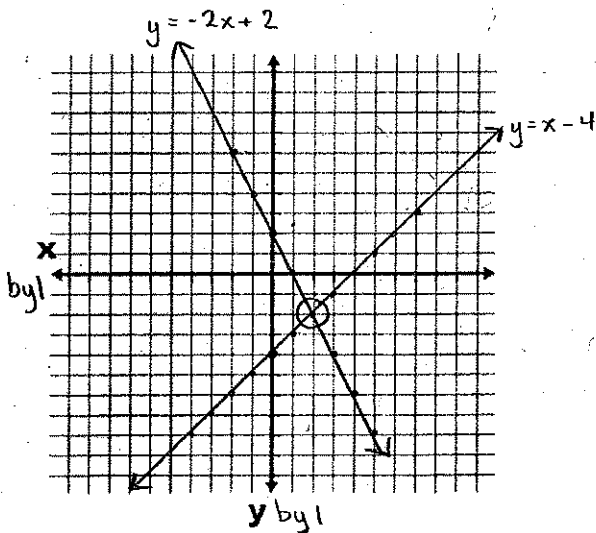


$x = 5$ Check: $5 = 2(5) - 5$
 $5 = 10 - 5$
 $5 = 5 \checkmark$

In Exercises 3 and 4, solve the equation by graphing. Check your solution.

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

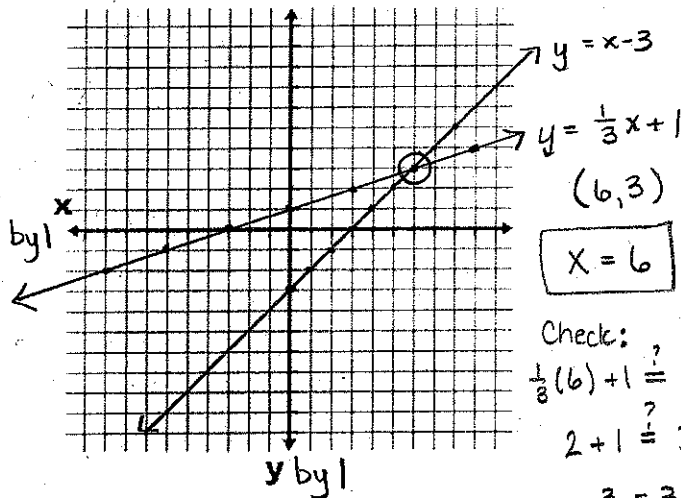
$y = x - 4$ $y = -2x + 2$



$(2, -2)$ $x = 2$ Check: $2 - 4 = -2(2) + 2$
 $-2 = -4 + 2$
 $-2 = -2 \checkmark$

4. $\frac{1}{3}x + 1 = x - 3$

$y = \frac{1}{3}x + 1$ $y = x - 3$

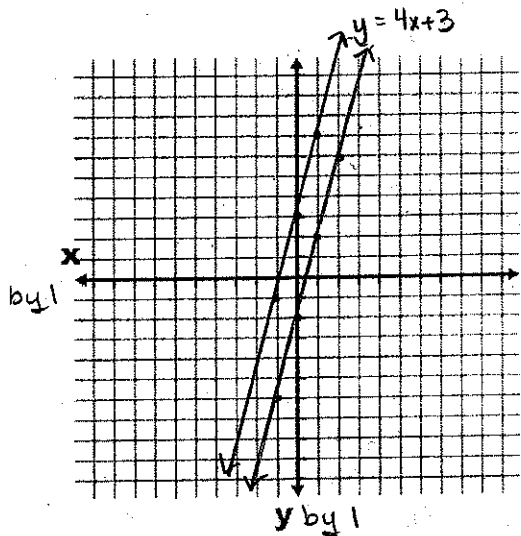


$x = 6$ Check: $\frac{1}{3}(6) + 1 = 6 - 3$
 $2 + 1 = 3$
 $3 = 3 \checkmark$

In Exercises 7 and 8, solve the equation by graphing. Determine whether the equation has one solution, no solution, or infinitely many solutions.

5. $4x + 3 = 4x - 2$

$y = 4x + 3$
 $y = 4x - 2$ } parallel - expect no solution

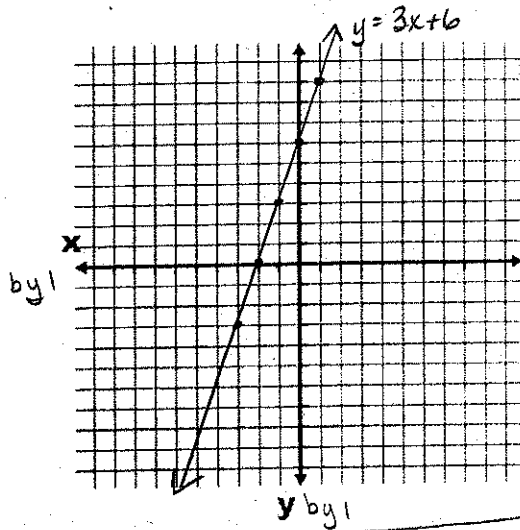


No solution

6. $3x + 6 = 3(x + 2)$

$3x + 6 = 3x + 6$

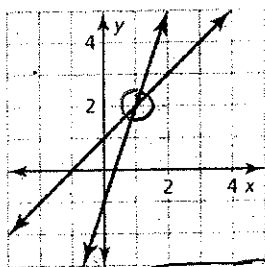
$y = 3x + 6$
 $y = 3x + 6$ } same line, infinitely many solutions



Infinitely many solutions

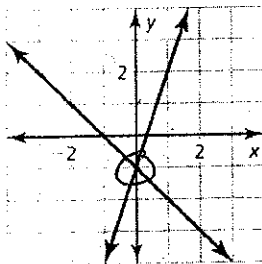
7. Use the graphs to solve the equation. Check your solutions.

$|3x - 1| = |x + 1|$



(1, 2) $x = 1$

Check: $|3(1) - 1| = |1 + 1|$
 $|3 - 1| = |2|$
 $|2| = |2|$
 $2 = 2$ ✓



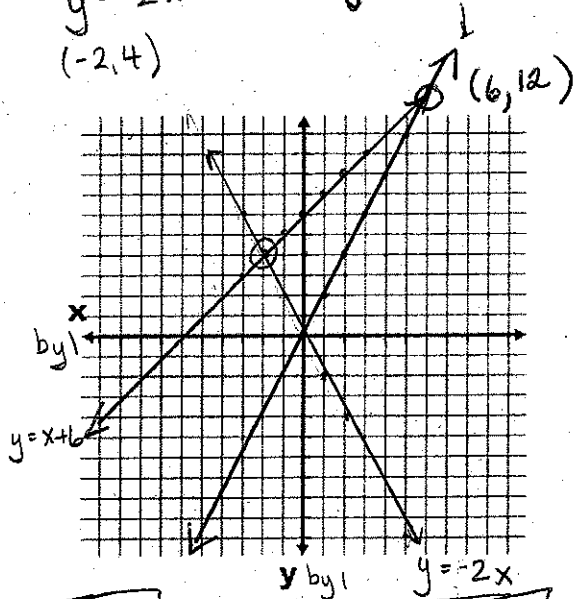
(0, -1)
 $x = 0$

Check: $|3(0) - 1| = |0 + 1|$
 $|-1| = |1|$
 $1 = 1$ ✓

In Exercises 8 and 9, solve the equation by graphing. Check your solutions.

8. $|x + 6| = |-2x|$

$$\begin{aligned} x+6 &= -2x & x+6 &= 2x \\ y &= x+6 & y &= x+6 \\ y &= -2x & y &= 2x \\ (-2, 4) & & (6, 12) & \end{aligned}$$



$x = -2$

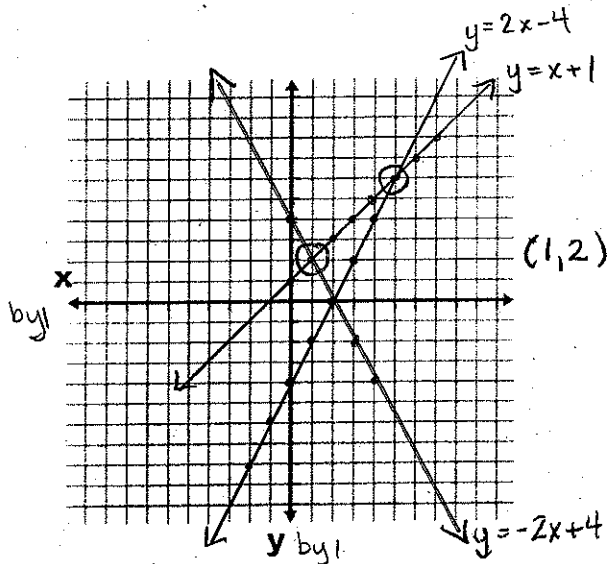
Check: $|-2+6| = |-2(-2)|$
 $|4| = |4|$
 $4 = 4 \checkmark$

$x = 6$

Check: $|6+6| = |-2(6)|$
 $|12| = |-12|$
 $12 = 12 \checkmark$

9. $|x + 1| = |2x - 4|$

$$\begin{aligned} x+1 &= 2x-4 & \text{or} & & x+1 &= -(2x-4) \\ y &= x+1 & & & x+1 &= -2x+4 \\ y &= 2x-4 & & & y &= x+1 & y &= -2x+4 \end{aligned}$$



$(5, 6)$
 $x = 5$

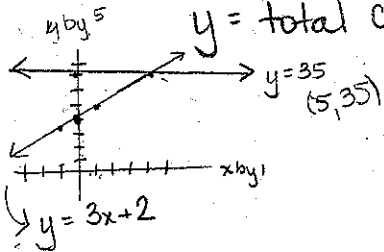
Check: $|5+1| = |2(5)-4|$
 $|6| = |10-4|$
 $6 = 6 \checkmark$

$x = 1$

Check: $|1+1| = |2(1)-4|$
 $|2| = |-2|$
 $2 = 2 \checkmark$

10. You need to rent a bowling lane. On Friday nights, you have two options. Option A is a \$20 lane rental plus \$3 per game. Option B is a \$35 lane rental with a maximum of 10 games. For what number of games is the total cost the same for each option? Write and solve a linear system to answer this question.

$x = \#$ of games
 $y = \text{total cost}$



$$\begin{aligned} y &= 3x + 20 \\ y &= 35 & x &\leq 10 \end{aligned}$$

linear system
 $(5, 35)$

Check: $35 = 3x + 20$
 $35 = 3(5) + 20$
 $35 = 15 + 20$
 $35 = 35 \checkmark$

$$\begin{aligned} 3x + 20 &= 35 \\ -20 & \quad -20 \\ \hline 3x &= 15 \\ \frac{3x}{3} &= \frac{15}{3} \end{aligned}$$

$x = 5$

The two options are equivalent after 5 games.
 The total cost for either option is \$35 at this point.