

3.1 Standard Form Equations of Lines

Algebra 1

Name: *Solutions*

Practice

Circle all the ordered pairs (x, y) that are solutions to the given equation.

1. $3x + 5y = 10$

(10, 4) (2, 0) **(5, -1)** (1, 1) **(0, 2)**

2. $x - 2y = 4$

(0, -1) **(6, 1)** (1, 8) **(-4, -4)** (3, 12)

3. $7y - 2x = -1$

(11, 3) (0, 1) (1, -8) (-5, 1) **(4, 1)**

4. $10x + 2y = -2$

(-1, 5) **(2, -11)** (-3, 10) (4, 10) (-5, 10)

5. $3x + y = 3$

(-2, 9) (-1, 5) (0, -3) (1, 1) (2, -2)

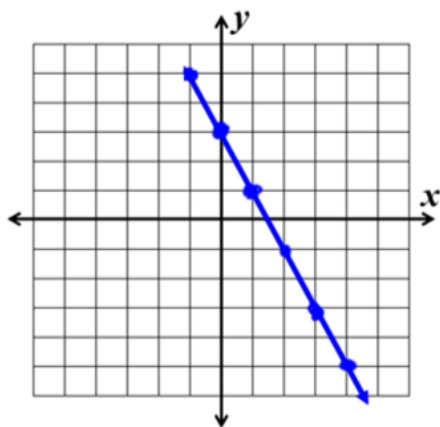
6. $2y - 8x = 10$

(-2, -3) (-1, 2) (0, 10) (1, 8) **(2, 13)**

Graphing Standard Form. Solve for y , then graph.

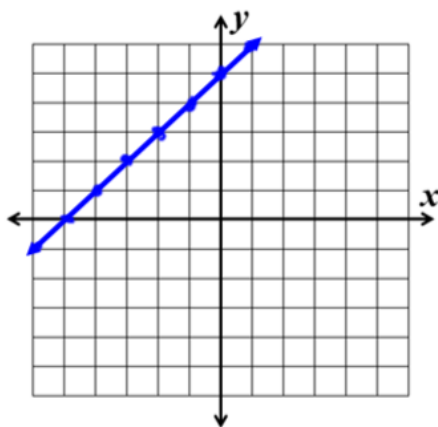
7. $2x + y = 3$

$y = -2x + 3$



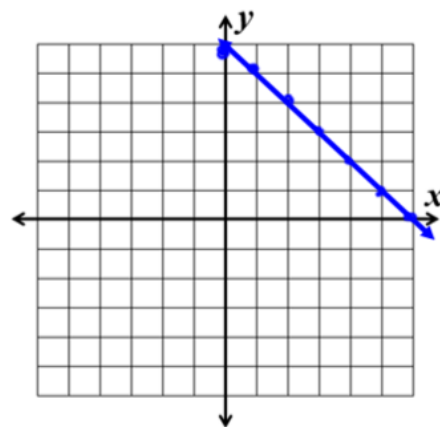
8. $x - y = -5$

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



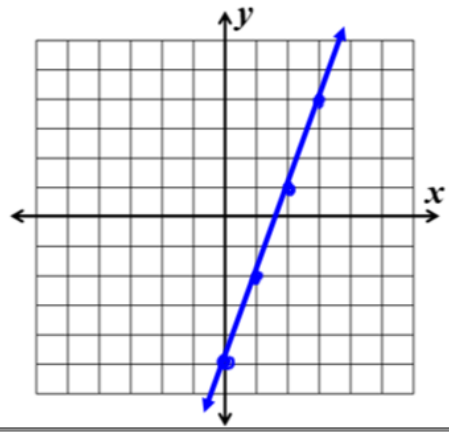
9. $x + y = 6$

$y = -x + 6$

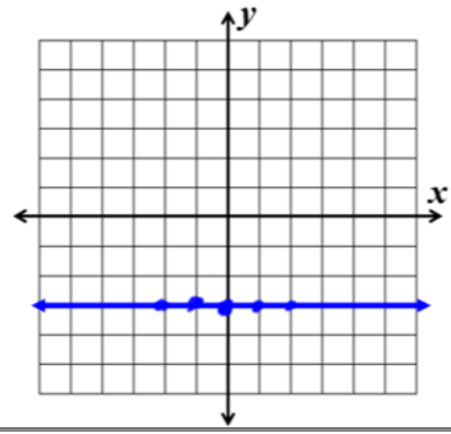


10. $3x - y = 5$

$$\begin{aligned} -y &= -3x + 5 \\ \frac{-y}{-1} &= \frac{-3x}{-1} + \frac{5}{-1} \\ y &= 3x - 5 \end{aligned}$$

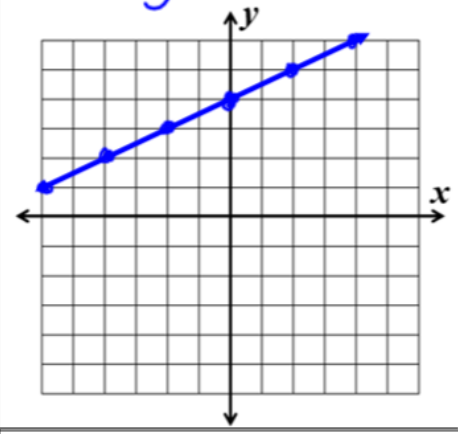


11. $y = -3$



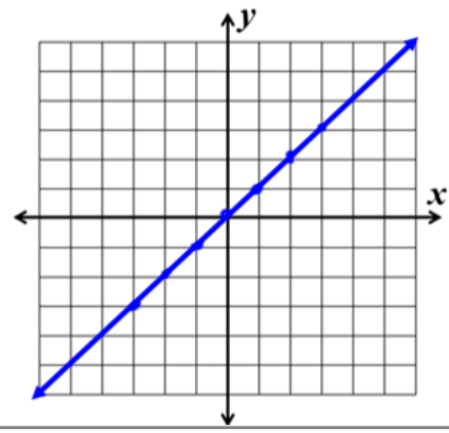
12. $x - 2y = -8$

$$\begin{aligned} -2y &= -x - 8 \\ \frac{-2y}{-2} &= \frac{-x}{-2} + \frac{-8}{-2} \\ y &= \frac{1}{2}x + 4 \end{aligned}$$



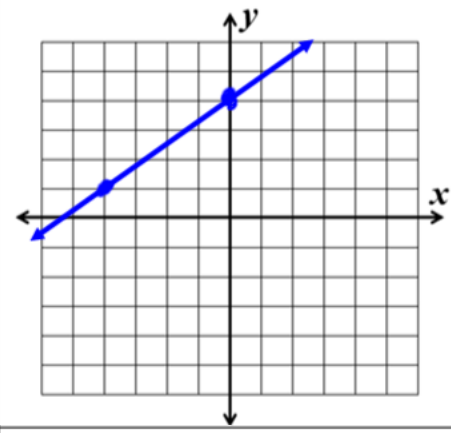
13. $y - x = 0$

$$y = x$$

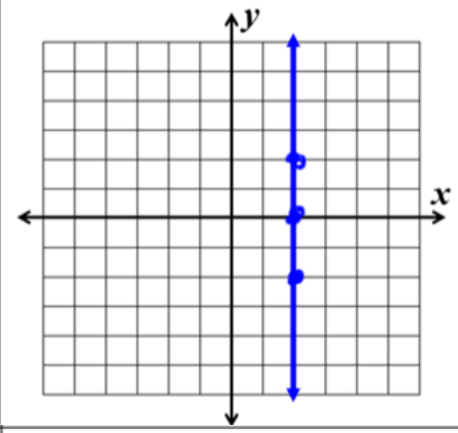


14. $4y - 3x = 16$

$$\begin{aligned} 4y &= 3x + 16 \\ y &= \frac{3}{4}x + 4 \end{aligned}$$

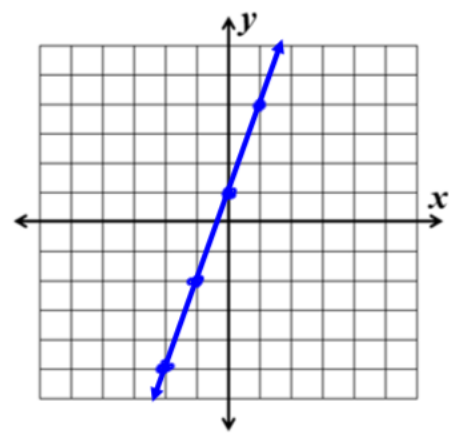


15. $x = 2$



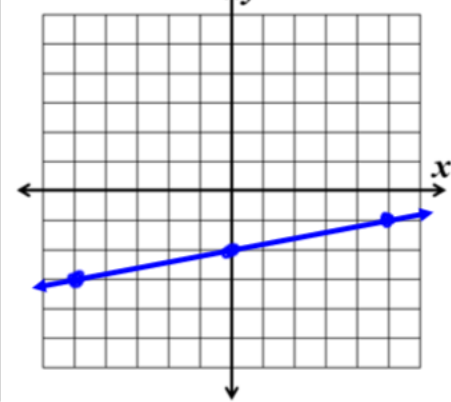
16. $y - 3x = 1$

$$y = 3x + 1$$



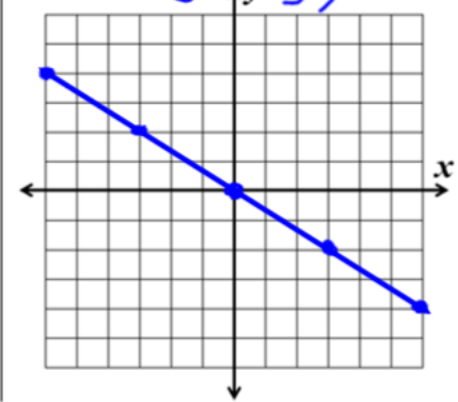
17. $x - 5y = 10$

$$\begin{aligned} -5y &= -x + 10 \\ \frac{-5y}{-5} &= \frac{-x}{-5} + \frac{10}{-5} \\ y &= \frac{1}{5}x - 2 \end{aligned}$$



18. $2x + 3y = 0$

$$\begin{aligned} 3y &= -2x \\ \frac{3y}{3} &= \frac{-2x}{3} \\ y &= -\frac{2}{3}x \end{aligned}$$

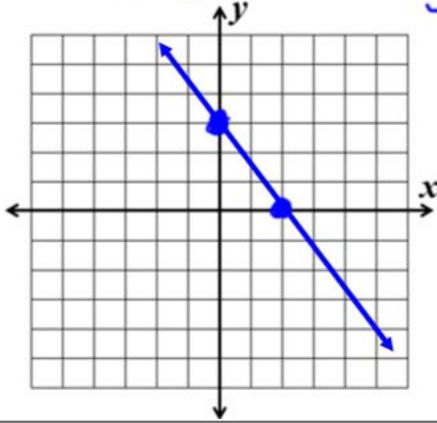


Graphing Standard Form. Find the x- and y-intercepts, then graph.

19. $3x + 2y = 6$

x-intercept $(?, 0)$
 $3x + 2(0) = 6$
 $x = 2$

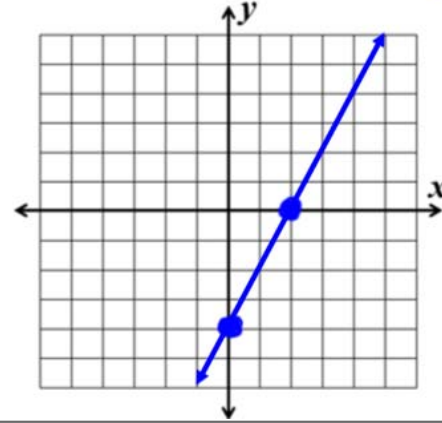
y-intercept $(0, ?)$
 $3(0) + 2y = 6$
 $y = 3$



20. $2x - y = 4$

x-intercept $(?, 0)$
 $2x - 0 = 4$
 $x = 2$

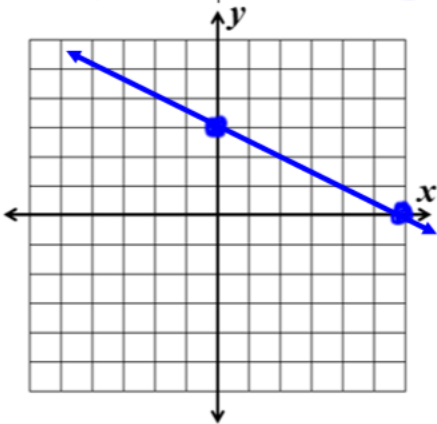
y-intercept $(0, ?)$
 $2(0) - y = 4$
 $y = -4$



21. $x + 2y = 6$

x-intercept $(?, 0)$
 $x + 2(0) = 6$
 $x = 6$

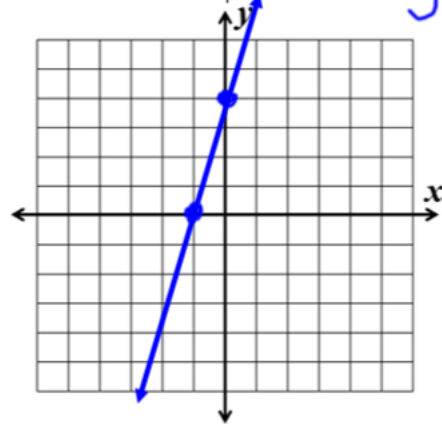
y-intercept $(0, ?)$
 $0 + 2y = 6$
 $y = 3$



22. $y - 4x = 4$

x-intercept $(?, 0)$
 $0 - 4x = 4$
 $x = -1$

y-intercept $(0, ?)$
 $y - 4(0) = 4$
 $y = 4$



Determine what value(s) for the given variable will make the following equations true. (use mental math)

23. $(x - 3)^2 = 25$

$\{-2, 8\}$

24. $\frac{x+2}{x^2+1} = \frac{6}{17}$

$\{4\}$

25. $g^2 - 5 = -1$

$\{-2, 2\}$

Solve each equation. Put your solution in set notation.

26. $-5x - 8(2x - 8) = -104$

$-5x - 16x + 64 = -104$
 $-21x + 64 = -104$
 $\frac{-64}{-21} \quad \frac{-64}{-21}$
 $-21x = -168$
 $\frac{-21}{-21} \quad \frac{-21}{-21}$
 $x = 8$

$\{8\}$

27. $-4 + \frac{n+4}{5} = -6$

$\frac{+4}{5} \cdot \frac{n+4}{5} = -2 \cdot 5$
 $n+4 = -10$
 $\frac{-4}{-4} \quad \frac{-4}{-4}$
 $n = -14$

$\{-14\}$