

Writing Linear Equations

Write an equation in slope-intercept form for the line that satisfies each set of conditions.

13. slope 2, passes through (-3, 0)

SOLUTION:

$$y = mx + b$$

$$0 = 2 * -3 + b$$

$$0 = -6 + b$$

$$0 + 6 = -6 + 6 + b$$

$$6 = b$$

$$y = 2x + 6$$

ANSWER:

$$y = 2x + 6$$

14. slope 0.75, passes through (2, 1)

SOLUTION:

$$y = mx + b$$

$$1 = .75 * 2 + b$$

$$1 = 1.5 + b$$

$$1 - 1.5 = 1.5 - 1.5 + b$$

$$-.5 = b$$

$$y = .75x - .5$$

ANSWER:

$$y = .75x - .5$$

15. slope $-\frac{1}{2}$, passes through (1, 3)

SOLUTION:

$$y = mx + b$$

$$3 = -\frac{1}{2} * 1 + b$$

$$3 = -\frac{1}{2} + b$$

$$3 + \frac{1}{2} = -\frac{1}{2} + \frac{1}{2} + b$$

$$3\frac{1}{2} = b$$

$$y = -\frac{1}{2}x + 3\frac{1}{2}$$

ANSWER:

$$y = -\frac{1}{2}x + 3\frac{1}{2}$$

16. slope $\frac{3}{2}$, passes through (-5, 1)

SOLUTION:

$$y = mx + b$$

$$1 = \frac{3}{2} * -5 + b$$

$$1 = -\frac{15}{2} + b$$

$$1 + \frac{15}{2} = -\frac{15}{2} + \frac{15}{2} + b$$

$$\frac{2}{2} + \frac{15}{2} = b$$

$$\frac{17}{2} = b$$

$$y = \frac{3}{2}x + \frac{17}{2}$$

ANSWER:

$$y = \frac{3}{2}x + \frac{17}{2}$$

17. passes through (-2, 5) and (3, 1)

SOLUTION:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{1 - 5}{3 - (-2)} = -\frac{4}{5}$$

$$y - y_1 = m(x - x_1)$$

$$y - 1 = -\frac{4}{5}(x - 3)$$

$$y - 1 = -\frac{4}{5}x + \frac{12}{5}$$

$$y - 1 + 1 = -\frac{4}{5}x + \frac{12}{5} + 1$$

$$y = -\frac{4}{5}x + \frac{12}{5} + \frac{5}{5}$$

$$y = -\frac{4}{5}x + \frac{17}{5}$$

ANSWER:

$$y = -\frac{4}{5}x + \frac{17}{5}$$

18. passes through (7, 1) and (7, 8)

SOLUTION:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{8 - 1}{7 - 7} = \frac{7}{0} = \text{undefined}$$

$$x = 7$$

ANSWER:

$$x = 7$$

19. passes through (4, 6), parallel to $y = \frac{2}{3}x + 5$

SOLUTION:

$$m = \frac{2}{3}$$

$$y = mx + b$$

$$6 = \frac{2}{3} * 4 + b$$

$$6 = \frac{8}{3} + b$$

$$6 - \frac{8}{3} = \frac{8}{3} - \frac{8}{3} + b$$

$$\frac{18}{3} - \frac{8}{3} = b$$

$$\frac{10}{3} = b$$

$$y = \frac{2}{3}x + \frac{10}{3}$$

ANSWER:

$$y = \frac{2}{3}x + \frac{10}{3}$$

20. passes through (2, -5), perpendicular to $y = \frac{1}{4}x + 7$

SOLUTION:

$$m = -\frac{4}{1} = -4$$

$$y = mx + b$$

$$-5 = -4 * 2 + b$$

$$-5 = -8 + b$$

$$-5 + 8 = -8 + 8 + b$$

$$3 = b$$

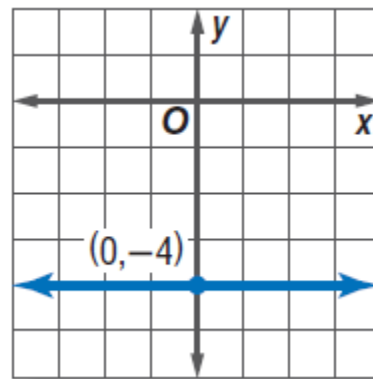
$$y = -4x + 3$$

ANSWER:

$$y = -4x + 3$$

Write an equation in slope-intercept form for each graph.

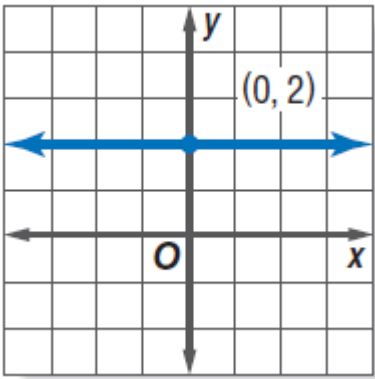
- 21.



ANSWER:

$$y = -4$$

22.



ANSWER:

$$y = 2$$