

CLASSWORK: Writing Equations of Lines

Write the slope-intercept form of the equation of the line through the given point with the given slope.

$$y = mx + b$$

1) through: (1, 3), slope = 8

$$y = 8x + b$$

$$3 = 8(1) + b$$

$$3 = 8 + b$$

$$-8 = -8$$

$$-5 = b$$

$$y = 8x - 5$$

2) through: (-4, -2), slope = $\frac{1}{4}$

$$y = \frac{1}{4}x + b$$

$$-2 = \frac{1}{4}(-4) + b$$

$$-2 = -1 + b$$

$$-1 = b$$

$$y = \frac{1}{4}x - 1$$

3) through: (-5, 0), slope = $\frac{2}{5}$

4) through: (0, -4), slope = $\frac{8}{5}$

5) through: (-3, 1), slope = $\frac{2}{3}$

6) through: (4, -2), slope = 0

$$y = 0x + b$$

$$-2 = 0(4) + b$$

$$-2 = 0 + b$$

$$-2 = b$$

$$y = 0x - 2$$

$$y = -2$$

7) through: (-2, 3), slope = -3

8) through: (-3, 5), slope = -1

9) through: (-2, -1), slope = undefined

10) through: (1, 0), slope = 1

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

$$y = mx + b$$

Write the slope-intercept form of the equation of the line through the given points.

11) through: $(4, -3)$ and $(-3, 3)$

12) through: $(-5, 4)$ and $(-2, -3)$

$$m = \frac{3 - (-3)}{-3 - 4} = \frac{-6}{-7}$$

$$y = -\frac{6}{7}x + \frac{3}{7}$$

$$y = mx + b$$
$$-3 = -\frac{6}{7}(4) + b$$

$$-3 = -\frac{24}{7} + b$$
$$+\frac{24}{7} \quad +\frac{24}{7}$$

$$b = \frac{3}{7}$$

13) through: $(-4, 2)$ and $(-4, 1)$

14) through: $(5, -3)$ and $(-4, -2)$

15) through: $(4, 1)$ and $(3, -2)$

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

$$y = 3x - 11$$

$$y = mx + b$$
$$1 = 3(4) + b$$

$$-12 = \frac{12}{12} + b$$
$$-11 = b$$

16) through: $(1, -3)$ and $(0, -3)$

17) through: $(2, 4)$ and $(0, 5)$

18) through: $(5, -5)$ and $(0, 0)$

$$m = \frac{5 - 4}{0 - 2} = -\frac{1}{2}$$

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

$$y = mx + b$$
$$4 = -\frac{1}{2}(2) + b$$

$$4 = -1 + b$$
$$+1 \quad +1$$
$$5 = b$$

19) through: $(2, 5)$ and $(-4, 0)$

20) through: $(5, -2)$ and $(0, -4)$