

Quick Reference: Write the linear equation in each form.

slope-intercept form

$$y = mx + b$$

point-slope form

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

standard form

$$Ax + By = C$$

1. Write the equation of the line in slope intercept form that has a y-intercept of $(0, -3)$ and a slope of -2 .

$$y = mx + b$$

$$y = -2x - 3$$

2. Write the equation of the line in slope-intercept form that passes through $(6, -4)$ and $(4, 4)$. $m = \frac{8}{-2} = -4$

$$y = mx + b$$

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

$$4 = -16 + b$$

$$+16 \quad +16$$

$$20 = b$$

$$y = -4x + 20$$

$$y - 4 = -4(x - 4)$$

$$y - 4 = -4x + 16$$

$$+4 \quad +4$$

$$y = -4x + 20$$

3. Write the equation of the line in point-slope form that passes through $(-5, 2)$ and has a slope of $3/4$.

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

$$y - 2 = \frac{3}{4}(x + 5)$$

4. Write the equation of the line in point-slope form that passes through $(-3, 1)$ and $(2, 5)$.

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

$$y - 1 = \frac{4}{5}(x + 3) \quad \text{or} \quad y - 5 = \frac{4}{5}(x - 2)$$

5. Rewrite $y = -\frac{2}{3}x + 5$ in standard form. $Ax + By = C$

$$3y = -2x + 15$$

$$+2x \quad +2x$$

$$2x + 3y = 15$$

6. Write the equation of the line in slope-intercept form that passes through $(7, 4)$, and is parallel to $y - 5 = \frac{3}{7}(x - 2)$.

$$1/m = \frac{3}{7}$$

$$\perp m$$

$$y - 4 = \frac{3}{7}(x - 7)$$

$$y - 4 = \frac{3}{7}x - 3$$

$$+4 \quad +4$$

$$y = \frac{3}{7}x + 1$$

7. What is the slope of a line that is perpendicular to $4x + 3y = -9$?

$$4x + 3y = -9$$

$$-4x \quad -4x$$

$$\frac{3y}{3} = \frac{-4x-9}{3}$$

$$y = -\frac{4}{3}x - 3$$

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

$$1/m = +\frac{3}{4}$$

8. Write the equation in standard form of the line that passes through $(2, 3)$, and is perpendicular to $y = -\frac{1}{3}x - 1$.

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

$$1/m = 3$$

$$y - 3 = 3(x - 2)$$

$$y - 3 = 3x - 6$$

$$-3x \quad -3x$$

$$-3x + y - 3 = -6$$

$$+3 \quad +3$$

$$-3x + y = -3$$

$$1(-3x + y = -3)$$

$$3x - y = 3$$