

Linear Equations

① slope-intercept

$$y = mx + b$$

\uparrow slope \uparrow y-inter.

② point-slope

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

\uparrow slope

③ standard

$$Ax + By = C$$

$$\text{Slope} = \frac{\text{vertical change}}{\text{horizontal change}}$$

$$= \frac{\text{rise}}{\text{run}} = \frac{\text{rise}}{\text{run}}$$

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

$$\textcircled{9} \quad y = -\frac{7}{5}x + 1$$

$$5y = -7x + 5$$

$$7x + 5y = 5$$

$$7x + 5y - 5 = 0$$

$$\textcircled{10} \quad y + 4 = -7(x - 1)$$

$$y + 4 = -7x + 7$$

$$y = -7x + 3$$

$$7x + y = 3$$

parallel lines have the same slope
 perpendicular lines have opposite reciprocal
 slopes

$$\textcircled{9} \quad y = \frac{2}{3}x$$

$$m = \frac{2}{3} \quad (2, 0)$$

$$y - 0 = \frac{2}{3}(x - 2)$$

$$y = \frac{2}{3}x - \frac{4}{3}$$

$$3y = 2x - 4$$

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

$$2x - 3y = 4$$

$$\textcircled{10} \quad y = -\frac{2}{7}x - 5$$

$$~~m = -\frac{2}{7}~~$$

$$m = \frac{7}{2} \quad (2, 4)$$

$$y - 4 = \frac{7}{2}(x - 2)$$

$$y - 4 = \frac{7}{2}x - 7$$

$$2y - 8 = 7x - 14$$

$$-7x + 2y - 8 = -14$$

$$-7x + 2y = -6$$

$$7x - 2y = 6$$