

Equation of the Line: $y = mx + b$ $m = \text{slope}$ $b = \text{y-intercept}$

Ex. 8: Find the slope.

$y = \frac{-2}{3}x + 5$
 $m = -\frac{2}{3}$
 Don't include X

Ex. 9: Find the slope. (solve for y)

$3x + 4y = 8$
 $-3x \quad -3x$
 $4y = -3x + 8$
 $\frac{4y}{4} = \frac{-3x + 8}{4}$
 $y = -\frac{3}{4}x + 2$
 $m = -\frac{3}{4}$
 1) subtract x
 2) \div by y

Ex. 10: Find the slope, special case.

a. $y = 2$ $m = 0$ (FOY)
 b. $x = 5$ m is und. (VUX)

Ex. 11: Write the equation of the line:

Given the slope and a point.

$m = \frac{1}{2}$ $(4, 6)$
 $y = mx + b$
 $(6) = \frac{1}{2}(4) + b$
 $6 = 2 + b$
 $4 = b$
 $y = \frac{1}{2}x + 4$

Ex. 12: Write the equation of the line:

Given two points.

$(6, 2)$ and $(4, 5)$
 $m = \frac{5-2}{4-6} = -\frac{3}{2}$
 $(2) = -\frac{3}{2}(6) + b$
 $2 = -9 + b$
 $11 = b$
 $y = -\frac{3}{2}x + 11$

Equation of the Line

Standard Form \rightarrow Slope-Int form.

$7x - y = 10$
 $-7x \quad -7x$
 $-y = -7x + 10$
 $-1 \quad -1 \quad -1$
 $y = 7x - 10$
 1) Subtract x part
 2) Divide by y part (or -1)

Slope-Int Form \rightarrow Standard Form

$y = \frac{3}{4}x + 2$ 1) Mult. by x's denom.
 $4y = 3x + 8$
 $-3x \quad -3x$
 $4y = 3x + 8$ 2) subtract x part
 $-3x + 4y = 8$
 or change all signs
 $3x - 4y = -8$