

T-A1 Algebra 1 Week 31

Slope $\begin{matrix} x_1 & y_1 \\ (-1, -14) \end{matrix}$ $\begin{matrix} x_2 & y_2 \\ (6, -16) \end{matrix}$

$$\text{slope} = \frac{\text{rise}}{\text{run}} = m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-16 - (-14)}{6 - (-1)} = \frac{-16 + 14}{6 + 1} = \boxed{\frac{-2}{7}}$$

down 2 / 7 right

$\begin{matrix} x_2 & y_2 \\ (-1, 4) \end{matrix}$ $\begin{matrix} x_1 & y_1 \\ (-7, -4) \end{matrix}$

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - (-4)}{-1 - (-7)} = \frac{4 + 4}{-1 + 7} = \frac{8 \div 2}{6 \div 2} = \boxed{\frac{4}{3}}$$

up 4 / 3 right

Slope-Intercept form

$$y = mx + b$$

\uparrow slope \uparrow y-intercept

$$(x_1, y_1)$$

$$(2, -8)$$

$$(x_2, y_2)$$

$$(4, -2)$$

- 1.) Find the slope
- 2.) Find equation of the line

$$\underline{\text{slope}} = m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - (-8)}{4 - 2} =$$

$$\frac{-2 + 8}{4 - 2} = \frac{6}{2} = \boxed{3}$$

Point-Slope form

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

$$m = \boxed{3}$$

$$(x_1, y_1)$$

$$(2, -8)$$

$$y - (-8) = 3(x - 2)$$

$$y + 8 = 3x - 6$$

-8 -8

$$\boxed{y = 3x - 14}$$

slope-intercept form

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

$$(x_1, y_1)$$

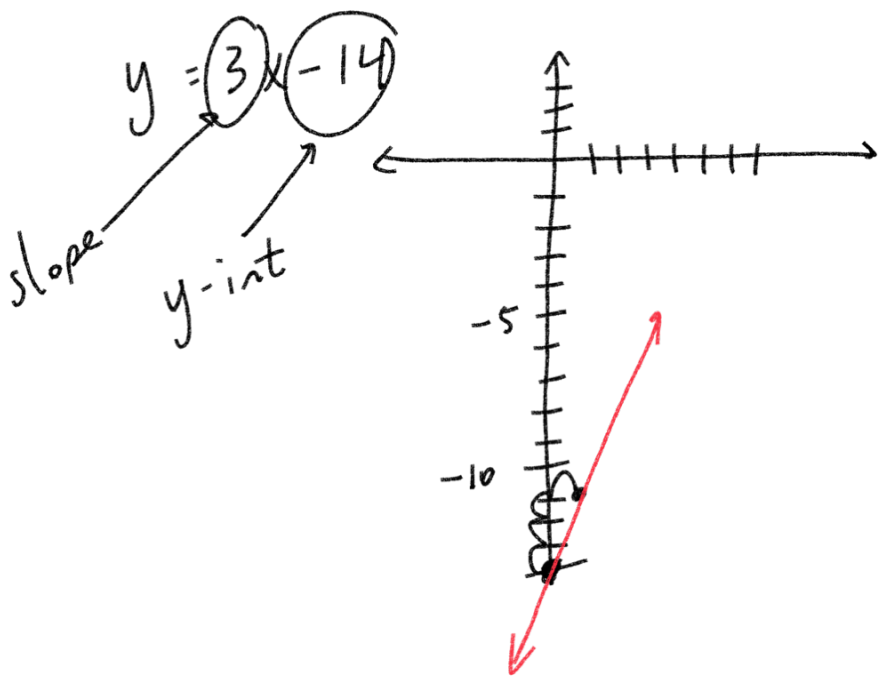
$$(4, -2)$$

$$y - (-2) = 3(x - 4)$$

$$y + 2 = 3x - 12$$

-2 -2

$$\boxed{y = 3x - 14}$$



Find the equation of the line in slope-intercept form

from the points $\begin{matrix} x_2, y_2 \\ \boxed{3, 7} \end{matrix}$ $\begin{matrix} x_1, y_1 \\ \boxed{-1, -5} \end{matrix}$

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - (-5)}{3 - (-1)} = \frac{7 + 5}{3 + 1} = \frac{12}{4} = \boxed{3}$$

- 1.) Find slope
- 2.) Use point-slope

Point-Slope Form

$$m = 3$$

$$\begin{pmatrix} x \\ y \\ \underline{\underline{-1, -5}} \end{pmatrix}$$

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

$$y - (-5) = 3(x - (-1))$$

$$y + 5 = 3(x + 1)$$

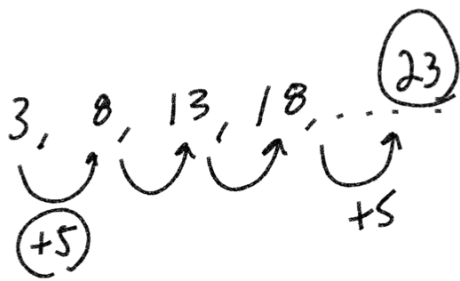
$$y + 5 = 3x + 3$$

$$\begin{matrix} -5 & -5 \end{matrix}$$

$$\boxed{y = 3x - 2}$$

- 3.) Convert into slope-intercept

HW
HW/ & 30 May 23rd
Test 5 May 18th



difference = +5
first number = 3

first number + difference $(n-1)$

n is the number in the sequence

5th term
 $n = 5$

$$3 + 5(5-1)$$

$$3 + 5(4)$$

$$3 + 20 = 23$$

10th term

$n = 10$

$$3 + 5(10-1)$$

$$3 + 5(9)$$

$$3 + 45 = 48$$