Review Packet: Writing the Equation of a Line

Multiple Choice
Identify the choice that best completes the statement or answers the question.

What is the slope of the line?

b 1.

a. 0   b. undefined

a 2.

a. 0   b. undefined

What are the slope and y-intercept of the graph of the given equation?

B 3. $y = -8x + 3$

  a. The slope is 3 and the y-intercept is −8.
  b. The slope is −8 and the y-intercept is 3.
  c. The slope is −3 and the y-intercept is −8.
  d. The slope is 8 and the y-intercept is −3.

$m = -8$ y inter $= 3$

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_C_ 4. $y = \frac{7}{10}x - \frac{10}{9}$

$M = \frac{7}{10}$ y-inter $= \frac{-10}{9}$

    a. The slope is $\frac{10}{7}$ and the y-intercept is $\frac{10}{9}$.

    b. The slope is $-\frac{10}{9}$ and the y-intercept is $\frac{7}{10}$.

    c. The slope is $\frac{7}{10}$ and the y-intercept is $-\frac{10}{9}$.

    d. The slope is $\frac{10}{9}$ and the y-intercept is $\frac{7}{10}$.

Write an equation of a line with the given slope and y-intercept.

_D_ 5. *Slope = 2, Y-intercept = 10*

$Y = 2x + 10$

    a. $y = -2x + 10$ c. $y = 10x + 2$

    b. $y = 2x - 10$ d. $y = 2x + 10$

_A_ 6. *Y-intercept = $-\frac{1}{3}$, Slope = $\frac{1}{6}$,*

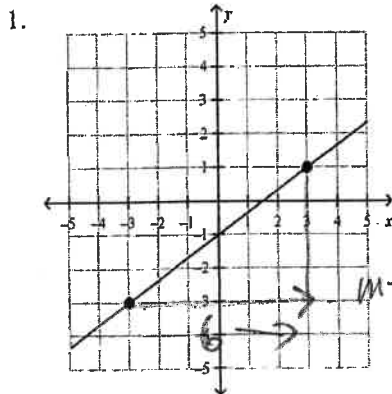   a. $y = \frac{1}{6}x - \frac{1}{3}$ c. $y = -\frac{1}{3}x + \frac{1}{6}$

$Y = \frac{1}{6}x - \frac{1}{3}$

    b. $y = 6x - \frac{1}{3}$ d. $y = \frac{1}{6}x + \frac{1}{3}$

Short Answer

What is the equation of the line in Slope Intercept Form?

1.

$Y = mx \pm b$

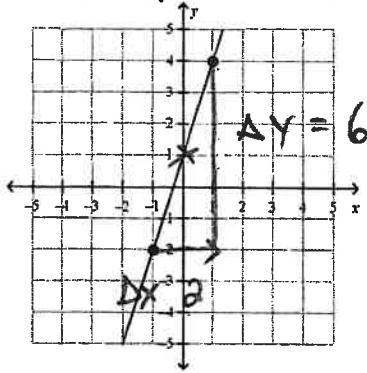$M = \frac{\Delta Y}{\Delta x} = \frac{4}{6} = \frac{2}{3}$

Slope: $\frac{2}{3}$ y-intercept: -1

Equation: $Y = \frac{2}{3}X - 1$

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2. **What is the equation of the line in Slope Intercept Form?**

$$\Delta Y = 6$$

$$m = \frac{\Delta Y}{\Delta x} = \frac{6}{2} = 3$$

$\Delta X = 2$

Slope: **3**   y-intercept: **1**

Equation: $Y = 3x + 1$

Graph the equation. Use a Ruler

3. $y = x + 3$

x	y
-2	1
-1	2
0	3
1	4
2	5

3
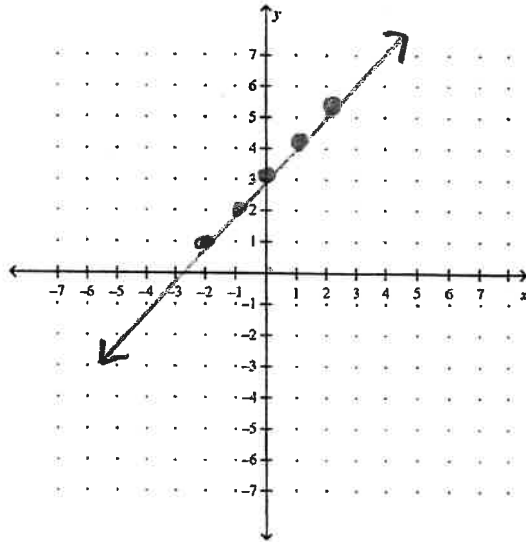
4. **Graph the equation. Use a Ruler**

$y = \frac{-2}{5}x + \textcircled{2}$ Y intercept

$m = \frac{-2 \text{ down}}{5 \text{ right}}$
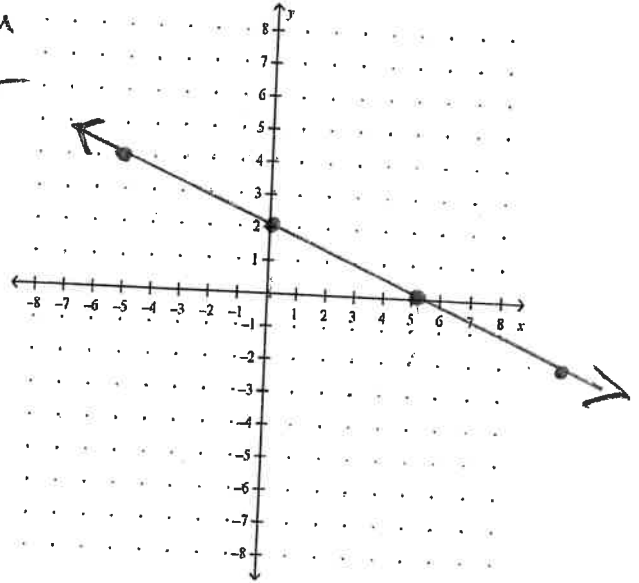
5. $y = 5$ zero slope.
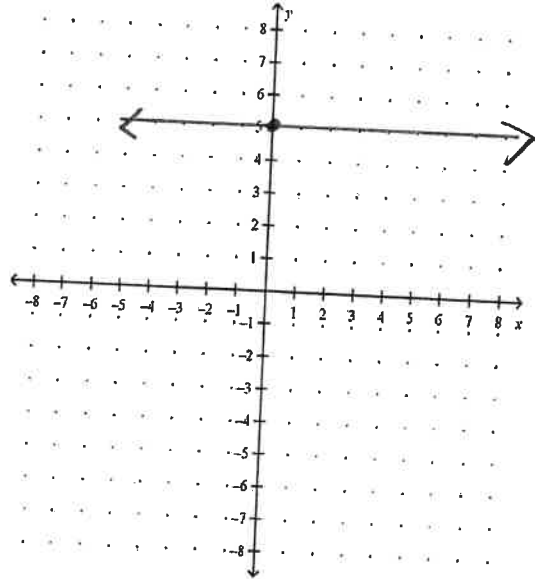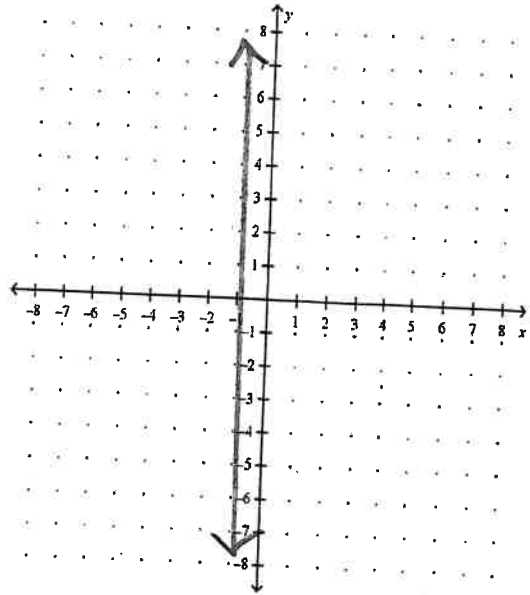
6. $x = -1$

undefined
slope.

Write the equation in Slope Intercept form and graph the equation.

7. $y + 3 = -5(x + 1)$

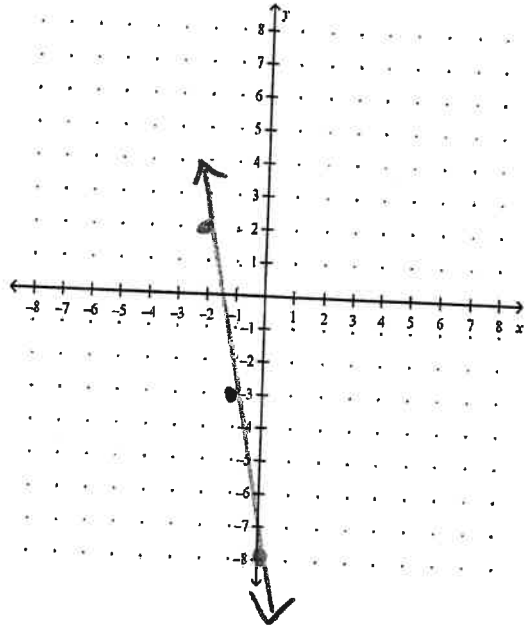$Y = -5x - 5 - 3$

$Y = -5x - 8$

$Y\text{-inter} = -8$

$m = \dfrac{-5}{1}$

Slope Intercept Form:

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Write an equation in Slope Intercept form for the line through the given point with the given slope.

8. $(-2, 9)$; $m = 1$

$$Y - 9 = 1(x + 2)$$

$$Y = x + 2 + 9$$

$$Y = x + 11$$

y-Intercept: ____11____

Equation: ____$Y = x + 11$____

9. $(2, -1)$; $m = 0$ horizontal line.

$$Y = -1$$

y-Intercept: ____-1____

Equation: ____$Y = -1$____

10. $(6, -5)$; $m = -\dfrac{3}{2}$

$$Y + 5 = -\frac{3}{2}(x - 6)$$

$$Y + 5 = -\frac{3}{2}x + 9$$

$$Y = -\frac{3}{2}x + 4$$

y-Intercept: ____4____

Equation: ____$Y = -\frac{3}{2}x + 4$____

What equation in slope intercept form represents the line that passes through the two points?

11. $(5, 4), (6, -3)$

$$m = \frac{-3-4}{6-5}$$

$$m = \frac{-7}{1}$$

$$Y-4 = -7(x-5)$$

$$Y-4 = -7x + 35$$

$$Y = -7x + 39$$

Slope: -7

y-Intercept: 39

Equation: $Y = -7x + 39$

12. $(5, 5), (6, 2)$

$$m = \frac{2-5}{6-5}$$

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

$$Y-5 = -3(x-5)$$

$$Y-5 = -3x + 15$$

$$Y = -3x + 20$$

Slope: -3

y-Intercept: 20

Equation: $Y = -3x + 20$

13. $(2, 7), (3, 1)$

$$m = \frac{7-1}{2-3}$$

$$m = \frac{6}{-1}$$

$$Y-1 = -6(X-3)$$

$$Y = -6x + 18 + 1$$

$$Y = -6x + 19$$

Slope: -6

y-Intercept: 19

Equation: $Y = -6x + 19$

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14. Mr. Rasczyk is tring to get abs of steel. At the end of 1 week he could do 10 sit-ups. After 4 weeks he could do 31 sit-ups.

$(1, 10)$ $(4, 31)$

What is Mr. Raz's rate of change (slope)?

$m = \dfrac{31 - 10}{4 - 1}$ $m = \dfrac{21}{3}$

$m = 7$ sit-ups/week.

What does the slope mean for Mr. Raz?

He can do 7 more sit ups every additional week.

What is the y -intercept?

$(1, 10)$

$Y = 7x + b$
$10 = 7(1) + b$
$10 = 7 + b$ $\boxed{b = 3}$

How many sit ups can Mr. Raz do the very first time he started? How do you know?

$(0, Y)$

$Y = 3$ or $10 - 7$
$= 3$

3 situps.

Write the equation of a line representing the amount of sit ups Mr. Raz can do.

$Y = 7x + 3$

$\begin{array}{r} 2 \\ 13 \\ \times\ 7 \\ \hline 91 \end{array}$

When will Mr. Raz be able to do 100 Sit-ups?

$100 = 7x + 3$
$\dfrac{97}{7} = \dfrac{\cancel{7}x}{7}$
$x = \dfrac{97}{7}$ 8
$x = 13\,\frac{6}{7}$ weeks.

$\begin{array}{r} 13.8 \\ 7\ \overline{)\ 97.0} \\ 7\!\!\downarrow\ \ \\ 2\cdot7 \\ 2\,1 \\ \hline 6\ 0 \\ 5\,6 \\ \hline 4 \end{array}$

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