Slope-Intercept Form Part 3

Mathematics 9
Linear Relations
Slope-Intercept Form Part 3

A. Definitions

1. slope: ratio of the vertical change (rise) to the horizontal change (run) of a line or a line segment.

$$Slope = \frac{Rise}{Run}$$

2. y-intercept: the y-coordinate of the point where a line or curve crosses the y-axis. It is the value of y when $x = 0$.

3. slope-intercept form: the equation of a line written in the form $y = mx + b$, where m represents the slope of the line and b represents the y-intercept of the line.

B. Finding the equation of a line in Slope-Intercept Form

1) Use the following graph to answer the questions.

a) Look closely at the graph and find 2 exact points.

b) Use the points to calculate Slope by finding Rise and Run.
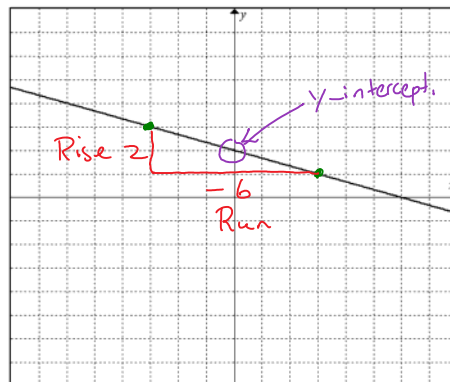
a) Calculate the slope of the line.

$$slope = \frac{Rise}{Run} = \frac{2}{-6} = \boxed{-\frac{1}{3}}$$

b) Determine the coordinates of the y-intercept.

$$y\text{-int } (0, 2)$$
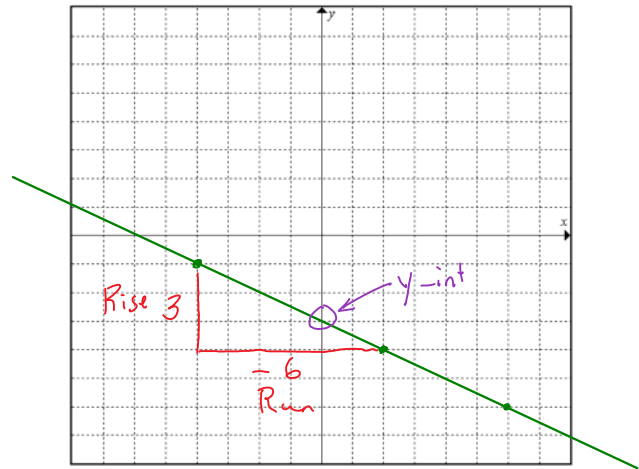
c) Use the slope and y-intercept to write the equation of the line in slope-intercept form.

Slope-intercept form $y = mx + b$

$$\boxed{y = -\frac{1}{3}x + 2}$$

2) The following points or located on the line. Draw the line and then determine the slope, the coordinates of the y-intercept and then write the equation of the line in slope-intercept form.

x	y
-4	-1
2	-4
6	-6

$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} = \frac{3}{-6} = \boxed{-\frac{1}{2}}$$

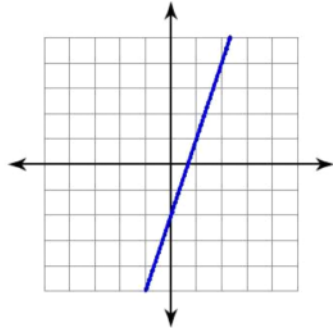$$\text{y-int } (0, -3)$$

$$\boxed{y = -\frac{1}{2}x - 3}$$

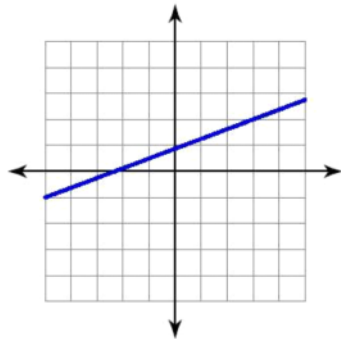Assignment :   Slope-Intercept Form Part 3 Assignment

Slope-Intercept Form Part 3 Assignment

A. Find the slope, the coordinates of the y-intercept and then write the equation of the following lines in slope-intercept form.
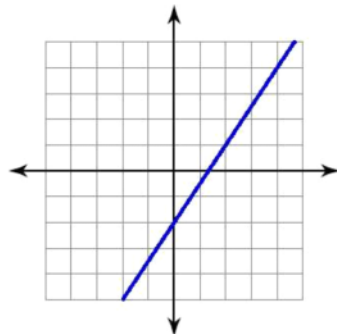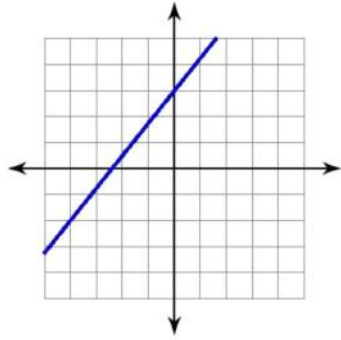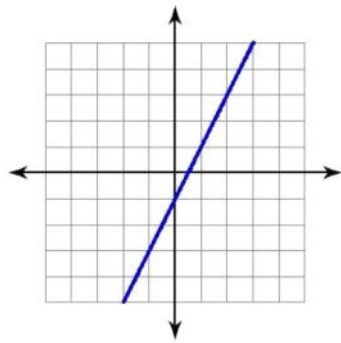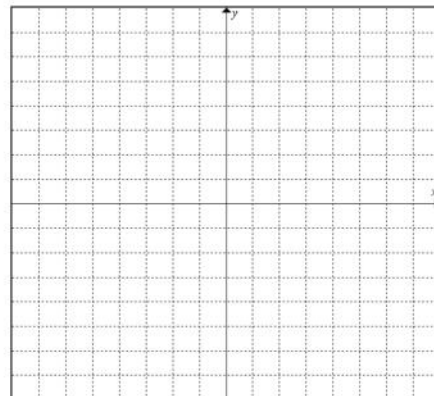
1)

2)

3)

4)

5)

B. The following points or located on the line. Draw the line and then determine the slope, the coordinates of the y-intercept and then write the equation of the line in slope-intercept form .
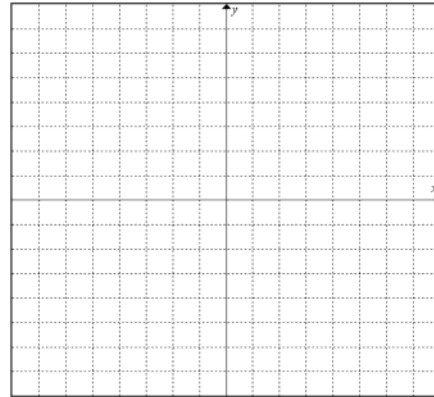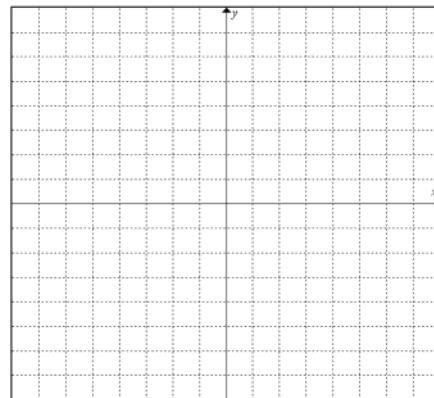
1)

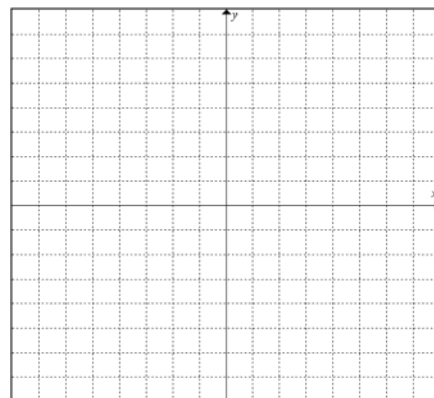| x	y
4	-4
-1	6
2	0

2)

x	y
-6	-5
3	-2
6	-1

3)

x	y
1	-2
2	2
3	6

4)

x	y
-6	5
-3	3
6	-3

5)

x	y
-2	3
4	6
6	7
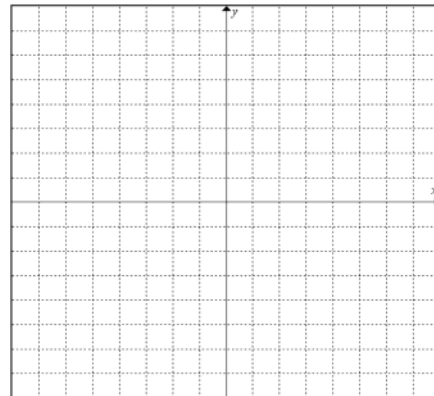
6)

x	y
-8	8
4	-1
8	-4
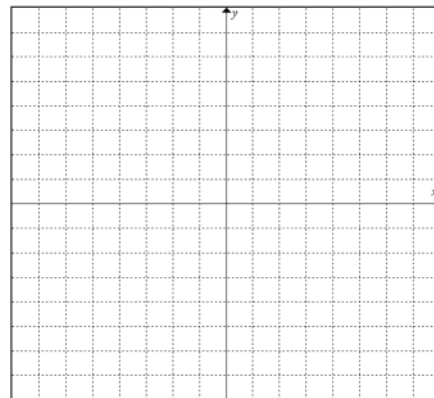
<u>Answers</u>

A. 1) $Slope = 3$

    $y \, int(0, -2)$

    $y = 3x - 2$

2) $Slope = \dfrac{1}{3}$

    $y - int(0, 1)$

    $y = \dfrac{1}{3}x + 1$

3) $Slope = \dfrac{3}{2}$

    $y - int(0, -2)$

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

4) $Slope = \dfrac{5}{4}$

    $y - int(0, 3)$

    $y = \dfrac{5}{4}x + 3$

5) $Slope = 2$

    $y - int(0, -1)$

    $y = 2x - 1$

D. 1) $Slope = -2$

    $y - int(0, 4)$

    $y = -2x + 4$

2) $Slope = \dfrac{1}{3}$

    $y - int(0, -3)$

    $y = \dfrac{1}{3}x - 3$

3) $Slope = 4$

    $y - int(0, -6)$

    $y = 4x - 6$

4) $Slope = -\dfrac{2}{3}$

    $y - int(0, 1)$

    $y = -\dfrac{2}{3}x + 1$

5) $Slope = \dfrac{1}{2}$

    $y - int(0, 4)$

    $y = \dfrac{1}{2}x + 4$

6) $Slope = -\dfrac{3}{4}$

    $y - int(0, 2)$

    $y = -\dfrac{3}{4}x + 2$