

Practice Writing Equations Starting with Tables

$y = \text{slope}(x) + y\text{-intercept}$

Complete each table. For each table, tell the slope (rate), the y-intercept (starting point), and write the equation.

1)  $\frac{\text{rise}}{\text{run}} = \frac{+1}{+1}$

x	y
0	0
1	5
2	10
3	15
4	20
5	25

$\frac{\text{rise}}{\text{run}} = \frac{5}{1} = 5$

Slope:  $\frac{5}{1} = 5$

y-intercept:  $0$

Equation:  $y = 5x$

2)  $\frac{\text{rise}}{\text{run}} = \frac{+3}{+1}$

x	y
0	5
1	8
2	11
3	14
4	17
5	20

$\frac{\text{rise}}{\text{run}} = \frac{3}{1} = 3$

Slope:  $\frac{3}{1} = 3$

y-intercept:  $5$

Equation:  $y = 3x + 5$

3)  $\frac{\text{run}}{\text{rise}} = \frac{+1}{-3}$

x	y
0	5
1	2
2	-1
3	-4
4	-7
5	-10

$\frac{\text{run}}{\text{rise}} = \frac{1}{-3} = -\frac{1}{3}$

Slope:  $-\frac{1}{3}$

y-intercept:  $5$

Equation:  $y = -\frac{1}{3}x + 5$

4)  $\frac{\text{rise}}{\text{run}} = \frac{+5}{+1}$

x	y
0	-6
1	-1
2	4
3	9
4	14
5	19

$\frac{\text{rise}}{\text{run}} = \frac{5}{1} = 5$

Slope:  $5$

y-intercept:  $-6$

Equation:  $y = 5x + (-6)$

5)  $\frac{\text{run}}{\text{rise}} = \frac{+1}{-2}$

x	y
-2	10
-1	8
0	6
1	4
2	2
3	0

$\frac{\text{run}}{\text{rise}} = \frac{1}{-2} = -\frac{1}{2}$

Slope:  $-\frac{1}{2}$

y-intercept:  $6$

Equation:  $y = -\frac{1}{2}x + 6$

6)  $\frac{\text{run}}{\text{rise}} = \frac{+1}{+6}$

x	y
-2	-11
-1	-5
0	1
1	7
2	13
3	19

$\frac{\text{run}}{\text{rise}} = \frac{1}{6} = \frac{1}{6}$

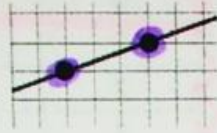
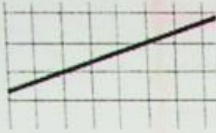
Slope:  $\frac{1}{6}$

y-intercept:  $1$

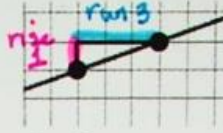
Equation:  $y = \frac{1}{6}x + 1$

## Finding the Slope of a Graphed Line

To find the slope of a graphed line, find two "nice" points on the grid, make the stair-step. The vertical distance is the numerator (rise) and the horizontal distance is the denominator (run).



Step 1:  
Mark 2 "nice" points where the gridlines intersect.



Step 2:  
Draw a stair-step between your two points.

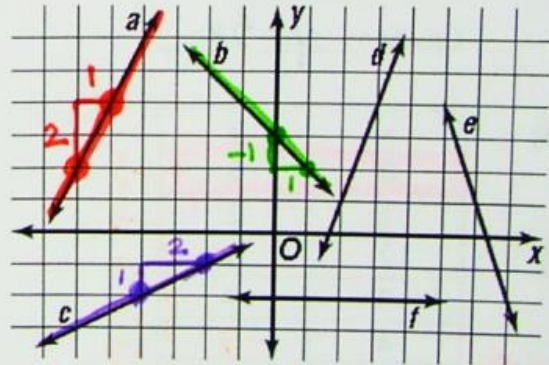


Step 3:  
Determine the rise and run of the stair step and write these as a ratio.

$$\text{Slope} = \frac{\text{rise}}{\text{run}} = \frac{1}{3}$$

Determine the slope of each line named below.

1. a  $\frac{2}{1} = 2$
2. b  $-\frac{1}{1} = -1$
3. c  $\frac{1}{2}$
4. d
5. e
6. f



7 Bennie is using this pattern to make stars for an

## Meaning of Equation

### Connecting Points

~ Unit 3, Page 35 ~  
 $y = \text{slope} \times x + y\text{-intercept}$

$$y = mx + b$$

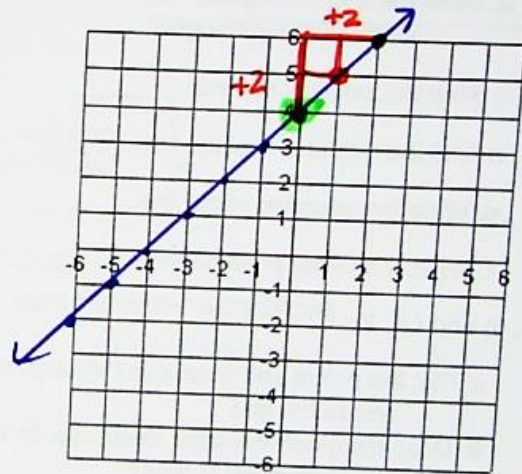
$$m = \text{slope}$$

$$b = y\text{-intercept}$$

For any two points, there is exactly one straight line that can be drawn through both points. In this problem, you will be given the coordinates of two points. Your task will be to find information about the line through these points – including its slope, its y-intercept, its equation, and other points on the line.

1) (2, 6) and (0, 4)

- a. Plot the points and draw a line through them across the grid.
- b. Does the graph increase, decrease, or stay the same from left to right? increases
- c. Find the slope of the line.  $\frac{2}{2} = 1$
- d. Find the y-intercept of the line. 4
- e. Write the equation of the line.  $y = x + 4$
- f. What is another point on the line. (1, 5)



2) (2, 3) and (4, 6)

- a. Plot the points and draw a line through them across the grid.
- b. Does the graph increase, decrease, or stay the same from left to right?
- c. Find the slope of the line. \_\_\_\_\_
- d. Find the y-intercept of the line. \_\_\_\_\_

