

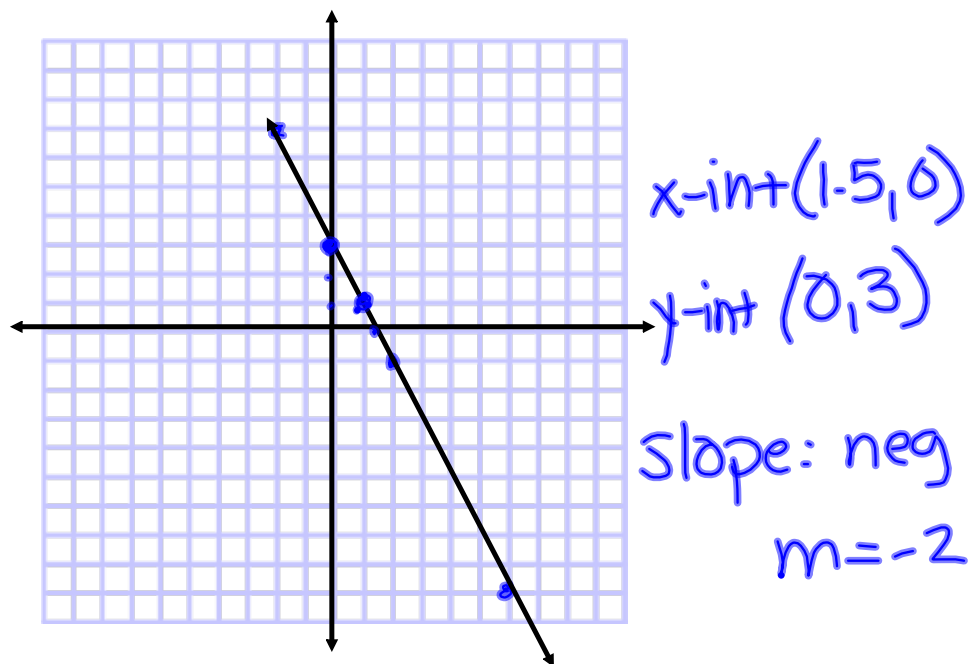
GRAPHIC REPRESENTATIONS OF ALGEBRA

Thinking KAP

p.107

Four sets of coordinates are listed below. Plot each point on the coordinate plane and draw a line that connects them.

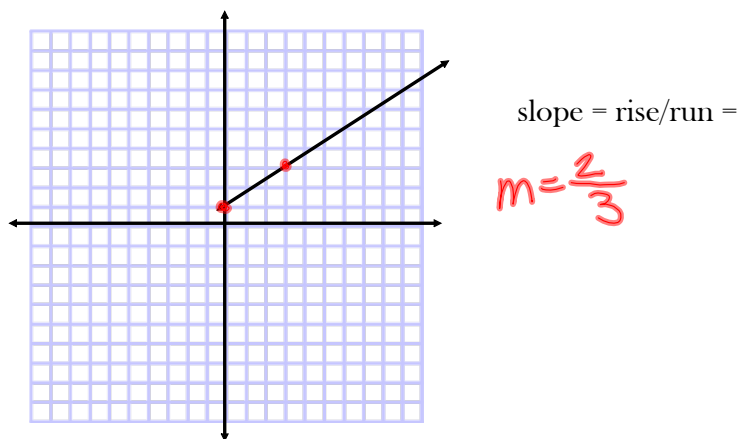
$(2,-1)$, $(-2,7)$, $(0,3)$, $(6,-9)$



Describe the line in the space below using any math terminology you know.

Calculating Slope

Many problems on the SAT will ask you to find the slope of a line, given two points. The slope is the ratio of the vertical change, or rise, over the horizontal change, or run



$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slope of the line that contains each pair of points shown below.

x_1, y_1, x_2, y_2
1. (5,4), (7,3)

$$m = \frac{3-4}{7-5} = \frac{-1}{2}$$

2. (4,2), (3,-4)

$$\frac{-4-2}{3-4} = \frac{-6}{-1} = 6$$

3. (0,0), (6,5)

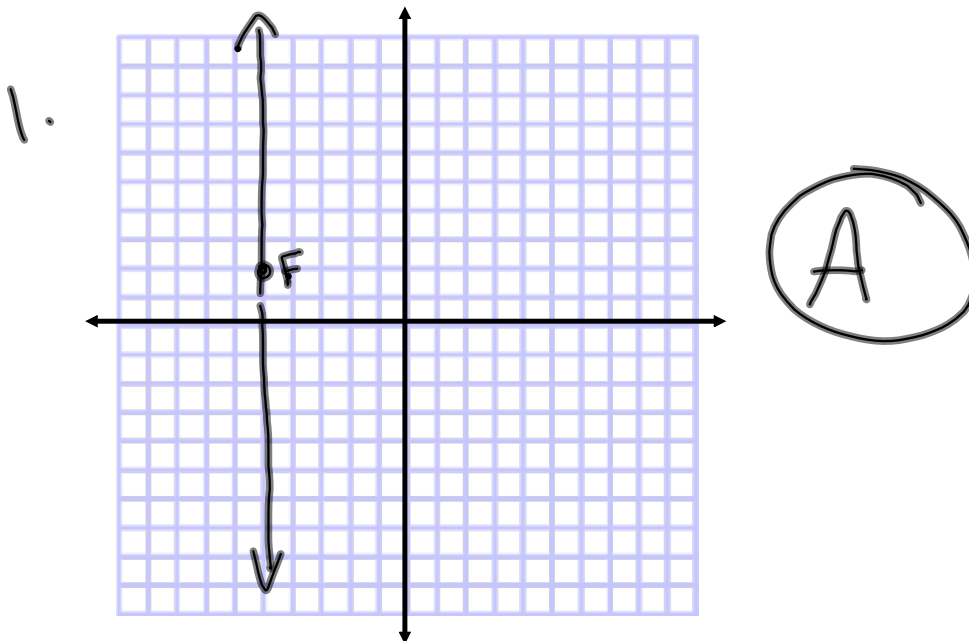
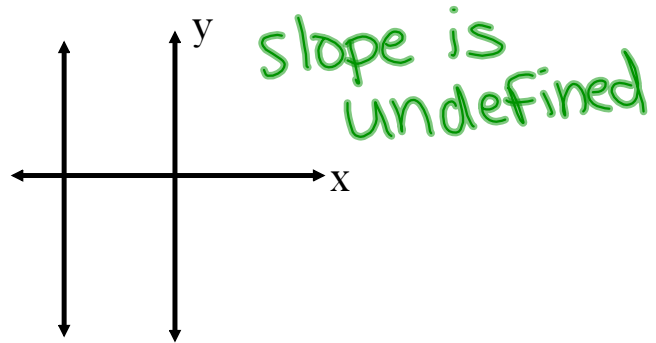
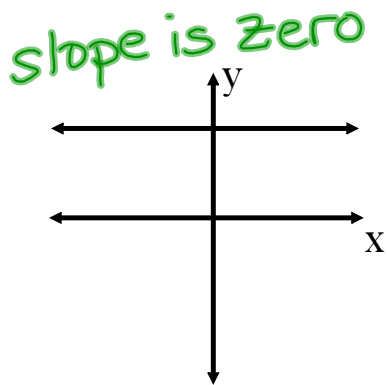
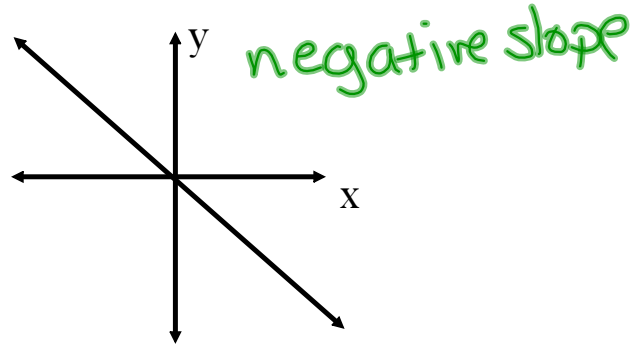
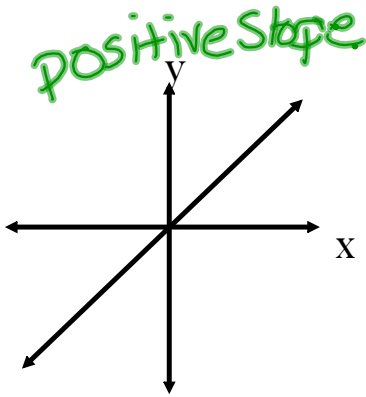
$$\frac{5-0}{6-0} = \frac{5}{6}$$

4. (4,-3), (-1,5)

$$\frac{5-(-3)}{-1-4} = \frac{8}{-5}$$

The Shape of the Graph

On the SAT you may be asked to identify the shape of a graph based on its equation. You should be able to recognize the four types of slope below.



$$y = mx + b$$

↑ ↑
slope y-int

$$2. \quad \underset{-6x}{6x} + y = \underset{-6x}{10x} + 7$$
$$y = 4x + 7$$

$$y\text{-int}: 7$$

$$y\text{-int} \quad x=0 \quad 0 + y = 0 + 7$$
$$y = 7$$

x-int: $y=0$

point(s) where
graph crosses x-axis

y-int: $x=0$

point where
graph crosses x-axis

