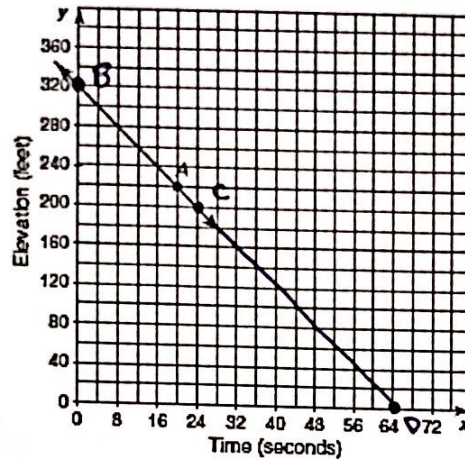


## Day 1 – Slope from a Graph - Notes

**Scenario:** The graph below shows a model of a skier's elevation, over time, while skiing down a hill. Answer the questions below the graph.



A. What does point A represent?

(20, 220)

At 20 seconds, he was  
220 ft high

C. Label the point (24, 200) with C. What does it represent?

At 24 seconds, he was  
200 ft high

B. At what elevation did the skier start? Label that point B.

(0, 320)

320 ft in the  
beginning

D. How long would it take the skier to reach the bottom? Draw a line to where the skier finished. Label that point D.

64 seconds

E. How many feet did the skier descend down the hill each second? Use the following points to determine:

a. Points B and D

B. Points A and B

C. Points A and C

$$-\frac{320 \text{ ft}}{64 \text{ sec}} = -\frac{5 \text{ ft}}{1 \text{ sec}}$$

$$-\frac{100 \text{ ft}}{20 \text{ sec}} = -\frac{5 \text{ ft}}{1 \text{ sec}}$$

$$-\frac{120 \text{ ft}}{24 \text{ sec}} = -\frac{5 \text{ ft}}{1 \text{ sec}}$$

What did you notice? His slope was the same no matter which points we picked

What you just calculated was the **slope** of the line. Slope can be described in several ways:

- Steepness of a line
- Rate of change – rate of increase or decrease
- $\frac{\text{Rise}}{\text{Run}} \rightarrow \text{Yuck!}$

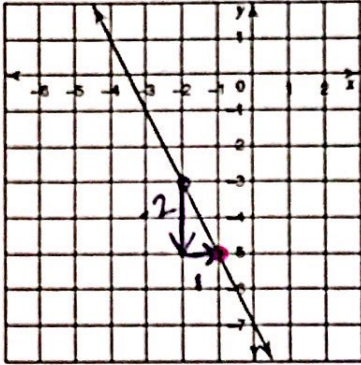
⊙ Change (difference) in y over change (difference) in x  $\frac{\Delta y}{\Delta x}$

## Slope from a Graph

Slope can be calculated in several different ways: graphs, tables, formulas, word problems, and equations.

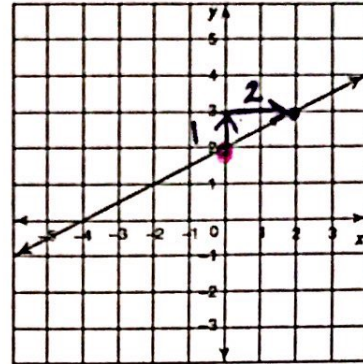
Ex. Calculate the slope of each of the graphs.

A. Slope: -2 y-intercept: (0,5)



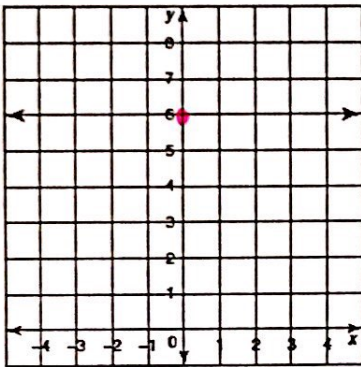
Equation:  $y = -2x + 5$

B. Slope:  $\frac{1}{2}$  y-intercept: (0,2)



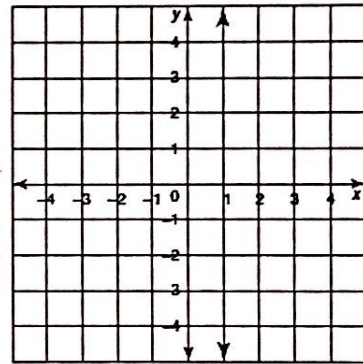
Equation:  $y = \frac{1}{2}x + 2$

C. Slope: 0 y-intercept: (0,6)



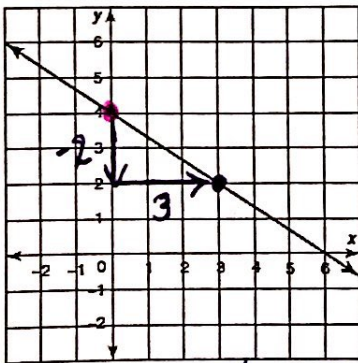
Equation:  $y = 6$

D. Slope: undefined y-intercept: none



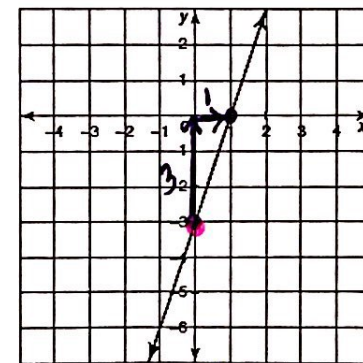
Equation:  $x = 1$

E. Slope:  $-\frac{2}{3}$  y-intercept: (0,4)



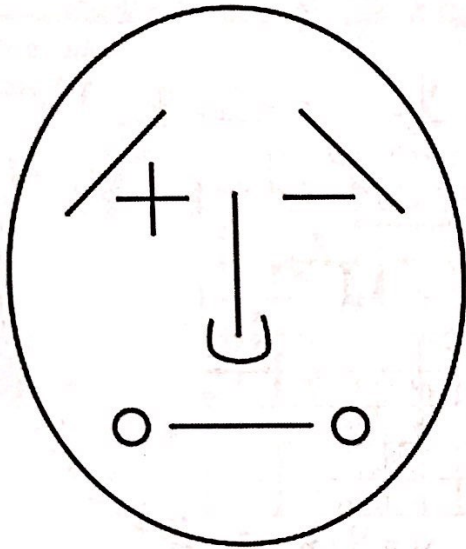
Equation:  $y = -\frac{2}{3}x + 4$

F. Slope: 3 y-intercept: (0,-3)



Equation:  $y = 3x - 3$

## 4 Types of Slope

**MR. SLOPE GUY**