**Slope of a Line**

How to calculate the slope of a line given two points:

slope = $\frac{Δy}{Δx}$ = $\frac{y2-y1}{x2-x1}$

where (x1, y1) & (x2, y2) are random points / coordinates

***Example #1***

A (0, 6)

B (8, 0)

**Step 1 –** Label the points that you will use as (x1, y1) & (x2, y2)

A (0,6) will be (x1, y1)

B (8,0) will be (x2, y2)

**Step 2 –** Put points (coordinates) into formula

slope = $\frac{Δy}{Δx}$ = $\frac{y2-y1}{x2-x1}$ = $\frac{0-6}{8-0}$

**Step 3 –** Simplify and reduce fraction

$\frac{0-6}{8-0}$ = $\frac{-6}{8}$ = $\frac{-3}{4}$

***Example #2***

A (0 ,5)

B (10, 15)

(x1, y1)

(x2, y2)

**Step 1 –** Label the points that you will use as (x1, y1) & (x2, y2)

A (0,5) will be (x1, y1)

B (10,15) will be (x2, y2)

**Step 2 –** Put points (coordinates) into formula

slope = $\frac{Δy}{Δx}$ = $\frac{y2-y1}{x2-x1}$ = $\frac{15-5}{10-0}$

**Step 3 –** Simplify and reduce fraction

$\frac{15-5}{10-0}$ = $\frac{10}{10}$ = 1

|  |  |
| --- | --- |
| **x** | **y** |
| 5 | 27.5 |
| 9 | 49.5 |
| 13 | 71.5 |
| 100 | 550 |

***Example #3***

**Step 1 –** Label the points that you will use as (x1, y1) & (x2, y2)

Point (9,49.5) will be (x1, y1)

Point (100,550) will be (x2, y2)

**Step 2 –** Put points (coordinates) into formula

slope = $\frac{Δy}{Δx}$ = $\frac{y2-y1}{x2-x1}$ = $\frac{550-49.5}{100-9}$

**Step 3 –** Simplify and reduce fraction

$\frac{550-49.5}{100-9}$ = $\frac{500.5}{91}$ = $\frac{11}{2}$

Try it again with a different set of points

**Step 1 –** Label the points that you will use as (x1, y1) & (x2, y2)

Point (13, 71.5) will be (x1, y1)

Point (5, 27.5) will be (x2, y2)

**Step 2 –** Put points (coordinates) into formula

slope = $\frac{Δy}{Δx}$ = $\frac{y2-y1}{x2-x1}$ = $\frac{27.5-71.5}{5-13}$

**Step 3 –** Simplify and reduce fraction

$\frac{27.5-71.5}{5-13}$ = $\frac{-44}{-8}$ = $\frac{11}{2}$

**Practice**

Determine the slope of the following situations:

1. Point G (-1, 6) & Point W (6, 34)

2. Point K (0.5, 6) & Point V (-1.5, 9)



3. 4.



5. 6.