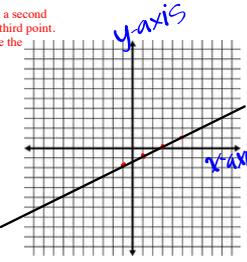


1. On the coordinate plane to the right, label the x and y axis.

2. Plot a point at (-1, -2). From that point, go up 1 and right 2 and plot a second point. From that second point go up 1 and right 2 again and plot your third point. From that point, go up 1 and right 2 again and plot the 4th point. Write the ordered pair for the 4th point here (5, 1)

How would you describe a line that contain each of these points?

straight line
increasing



3. Using your ruler sketch a line that runs through these points and plot several other points that lie on that line. Write down the directions for finding the next point.

Up 1 Right 2
Left 2 down 1

A **ratio** is a mathematical term that compares two objects. In our example we are comparing how far we move up/down to how far we move left/right. So we can write that **change** or distance as a ratio. This ratio is called the rate of change. Our ratio would be:

1:2

4. What makes the line straight rather than being curvy?

rate of change is: **CONSTANT**

When we move vertically (up and down) we are moving parallel to the y-axis.

We call this the change in y, because the y-coordinates are changing.

When we move horizontally (right and left) we are moving parallel to the x-axis.

We call this the change in x because the x-coordinates are changing.

This means that our ratio can be called the rate of change. Therefore slope is the ratio of the change in our y and the change in our x.

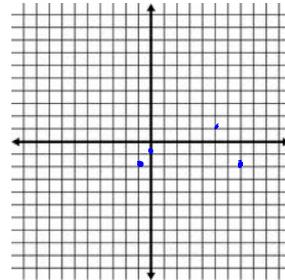
$$\frac{\text{how far we move up/down}}{\text{how far we move right/left}} = \frac{\text{change in y}}{\text{change in x}}$$

$$= \frac{\text{rise}}{\text{run}} = \text{slope} \quad \Delta y \quad \Delta x$$

5. How do you decide if we move up/down and right/left?

rise: up & down : y's
run: left/right : x's

6. Starting at the original point, use the slope 1/1 to plot another point, then 2/5 to plot a third and then -3/2 to plot a fourth point. Describe what your relation looks like. Point: (-1,-2)



The slope of a line is the measure of how

steep

a line is.

When the slope is a smaller number then the line will be less steep.

When the slope is a large number the line will be MORE steep.

In the picture to the right list the lines that satisfy the following:

1. Have a slope close to 0

(no steepness)

5

2. Have a fairly small slope

(not very steep)

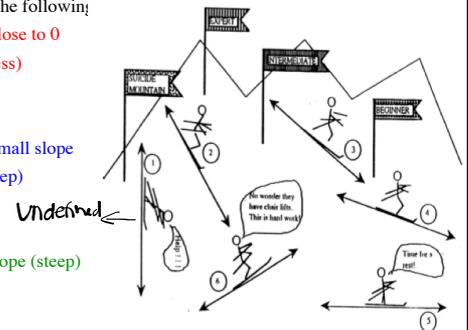
4

3. Have a large slope (steep)

6, 3, 2

4. None of the above

1



Example a)
 1. Positive or negative slope?
 The slope is: $-\frac{3}{2}$

Example b)
 1. Positive or negative slope?
 The slope is: $\frac{2}{4} = \frac{1}{2}$

Example c)
 1. Positive or negative slope?
 The slope is: $\frac{3}{6} \Rightarrow \frac{1}{2}$

On the following two coordinate planes draw a line with the following slopes:

Slope: 0

Slope: NONE

