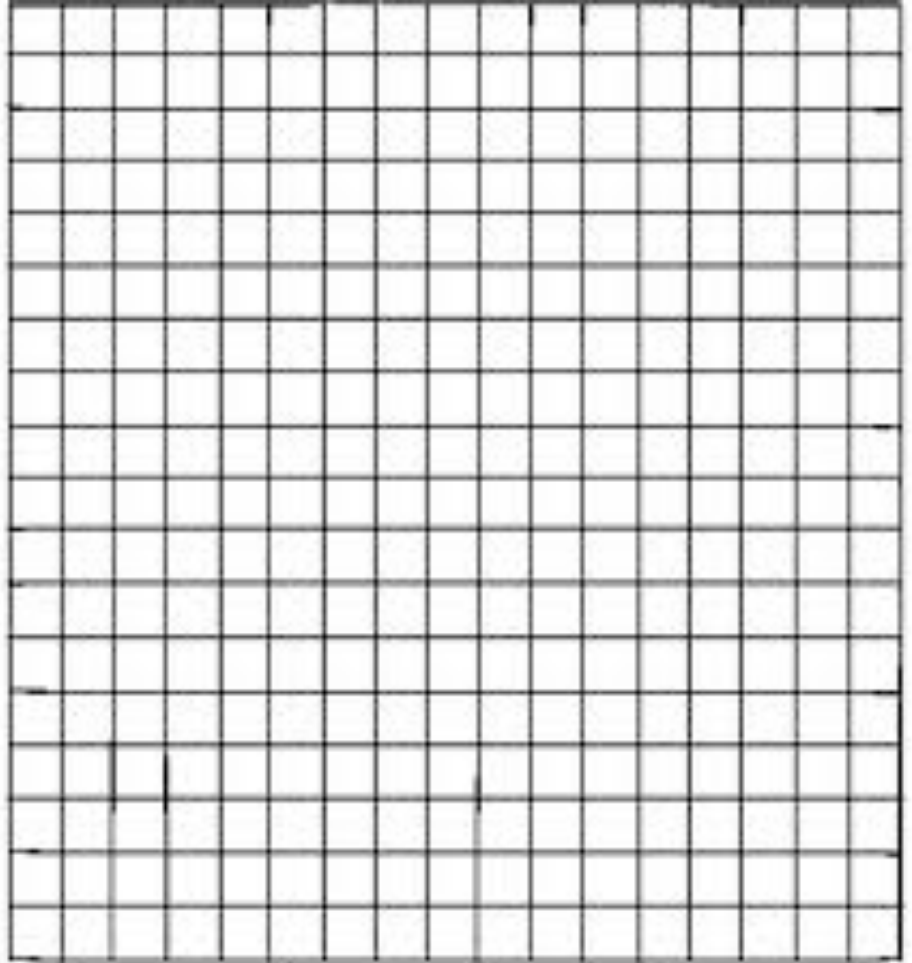


Graphing practice and Determining slope

Name _____

One interesting fact about air temperature is that the air is heated by the earth, NOT the sun! The sun heats the ground, and then the ground heats the air. Then at a certain point, the air heats again because of the Ozone layer catching the sun's energy too. Using the data from the table, graph the air temperature and altitude.

| Altitude (height, km) | Air temperature (Degrees F) |
|-----------------------|-----------------------------|
| 0 | 70 |
| 2 | 60 |
| 4 | 50 |
| 6 | 40 |
| 8 | 30 |
| 10 | 20 |
| 12 | 20 |
| 14 | 35 |
| 16 | 40 |



1. Between what heights is the temperature:

- a) Increasing with height?
- b) Decreasing with height?
- c) Staying the same?

SLOPE:

Slope is a number that can tell us a rate, such as how fast something occurs or how much change happens in a given amount of time or space. It's easy to see when slope changes. Then the line changes direction, the slope changes!

1. To find slope (for a straight line), pick two points on the line and write down their coordinates.

Example: Point 1 = (8, 4) Point 2 = (10, 12)

2. Take the Y coordinate from Point 2 and subtract the Y coordinate from point 1. Do the same thing for the X coordinates.

$$\text{Ex: } Y_2 = 12 \quad Y_1 = 6 \quad Y_2 - Y_1 = 12 - 4 = 8$$

$$X_2 = 10 \quad X_1 = 8 \quad X_2 - X_1 = 10 - 8 = 2$$

3. Divide the Y answer by the X answer. This is often referred to as "Rise over Run".

$$\text{Ex: } Y \text{ answer} = 8 \quad X \text{ answer} = 2$$

$$8/2 = 4.$$

4. To determine the units for your slope, look at the units of your Y-axis and X-axis. Put the Y axis unit over the X-axis unit.

EX: If your Y axis is in cm and the X axis is in seconds the units would be **cm/s**

FIND THE SLOPE OF THE FOLLOWING PARTS OF YOUR GRAPH USING THE 4 STEPS.

$$\frac{Y_2 - Y_1}{X_2 - X_1} = \text{SLOPE}$$

1. From 0 km to 10 km.

2. From 10 km to 12 km.

3. From 12 km to 16 km.