**Positive and Negative Slope**

The slope between two points on the graph of a function can be found by determining the ratio of the vertical distance and the horizontal distance between the two points. This ratio is known as the $\frac{change in y}{change in x}$ or $ \frac{rise}{run}$.

The **formula for the slope** between the two points A and B can be found by using the *x* and *y* coordinates of the two points. Call the ordered pair for point A (*x*1,*y*1) and the ordered pair for point B (*x*2,*y*2).

$$slope= \frac{rise}{run}=\frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}$$

Label the coordinates of two points on each line. Find the slope of each line by (a) finding the rise and run from the graph, and (b) using the slope formula. State whether the function is increasing or decreasing.

1.

By graph: By slope formula:

 (a)  (b) 

 Rise = \_\_\_\_\_\_\_\_ A ( , ) B( , )

 Run = \_\_\_\_\_\_\_\_ 

 Slope = \_\_\_\_\_\_\_\_ 

 Slope =

Increasing or decreasing?

By graph: By slope formula:

 (a)  (b) 

 Rise = \_\_\_\_\_\_\_\_ A ( , ) B( , )

 Run = \_\_\_\_\_\_\_\_ 

 Slope = \_\_\_\_\_\_\_\_ 

 Slope =

Increasing or decreasing?

By graph: By slope formula:

 (a)  (b) 

 Rise = \_\_\_\_\_\_\_\_ A ( , ) B( , )

 Run = \_\_\_\_\_\_\_\_ 

 Slope = \_\_\_\_\_\_\_\_ 

 Slope =

Increasing or decreasing?

By graph: By slope formula:

 (a)  (b) 

 Rise = \_\_\_\_\_\_\_\_ A ( , ) B( , )

 Run = \_\_\_\_\_\_\_\_ 

 Slope = \_\_\_\_\_\_\_\_ 

 Slope =

Increasing or decreasing?

By graph: By slope formula:

 (a)  (b) 

 Rise = \_\_\_\_\_\_\_\_ A ( , ) B( , )

 Run = \_\_\_\_\_\_\_\_ 

 Slope = \_\_\_\_\_\_\_\_ 

 Slope =

Increasing or decreasing?

1. Based on your work on the 5 functions above, complete the sentences below with the following words:

negative zero positive

1. The slope of a horizontal line is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. The slope of an increasing function is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. The slope of a decreasing function is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



1. Scott measured the slope of three roofs in Griswold. To measure the slope of a roof, Scott measured the height of the roof at the corner of the building and measured the height of the roof 12 feet from the corner of the building. Here are the measurements for all three roofs.

 Stephanie’s House Thad’s House Cody’s Horse Barn

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
| Distance from Corner | Roof Height |
| 0 | 9 |
| 12 | 15 |

 |

|  |  |
| --- | --- |
| Distance from Corner | Roof Height |
| 0 | 9 |
| 12 | 13 |

 |

|  |  |
| --- | --- |
| Distance from Corner | Roof Height |
| 0 | 7 |
| 12 | 10 |

 |

1. Plot the points for each person’s roof and connect the points to draw the roof line. Note: Make the scales of each graph the same.

Stephanie’s House Thad’s House



Cody’s Horse Barn



1. Determine the slope (the average rate of change) of each roof. Use units of measures.

 Stephanie’s: \_\_\_\_\_\_\_\_ Thad’s: \_\_\_\_\_\_\_\_ Cody’s: \_\_\_\_\_\_\_\_

1. Which building is most likely to have snow pile up on it? Explain.