

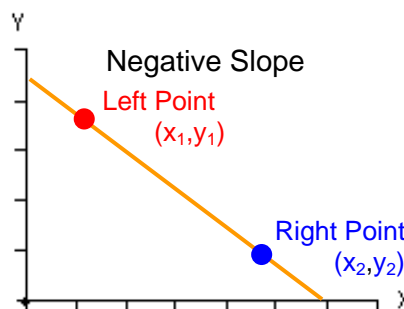
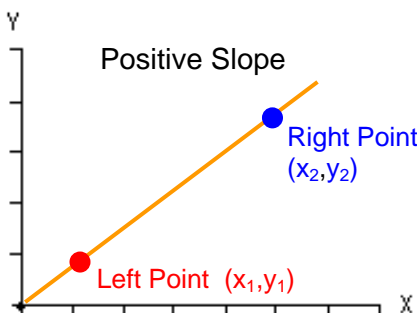


REQUIRED SKILL

Slope Calculation

Use the following procedure to find the slope of any linear graph.

1. Choose two points on the line that are at least half the length of the line apart.
2. Identify the coordinates of each point. Label the left coordinates (x_1, y_1) and the right coordinates (x_2, y_2) .
3. The slope formula is $\frac{\text{rise}}{\text{run}}$. The slope is a fraction with the rise equal to the numerator and the run equal to the denominator.
4. Starting with the left point, calculate the rise (the numerator). You either "rise up" or "rise down". The rise formula is $y_2 - y_1$.
5. If you "rise up", $y_2 - y_1$ is positive; if you "rise down", $y_2 - y_1$ is negative.



6. Starting with the left point, calculate the run (the denominator). You ALWAYS "run over". You will always run over to the right. The run formula is $x_2 - x_1$.
7. Next divide the rise (numerator) by the run (denominator).

$$\text{SLOPE} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

8. Check to see if you have the positive or negative sign correct. If the line is uphill, it will have a positive slope. If it is downhill, it will have a negative slope.
9. You have now calculated the numerical value of the slope. **The slope calculation is not complete without a unit.**
10. Calculate the unit of the slope.
11. The unit formula is $\frac{\text{y-axis unit}}{\text{x-axis unit}}$ (y-axis unit divided by the x-axis unit).
12. All together

SLOPE = Numerical Value PLUS a Unit

$$\text{SLOPE} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1} \text{ plus } \frac{\text{y-axis unit}}{\text{x-axis unit}} \quad \text{example: 20 Miles / Gallon}$$

Remember - - -

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

which is also =

$$\frac{\Delta \text{Dependent Variable}}{\Delta \text{Independent Variable}}$$