PLTW Engineering
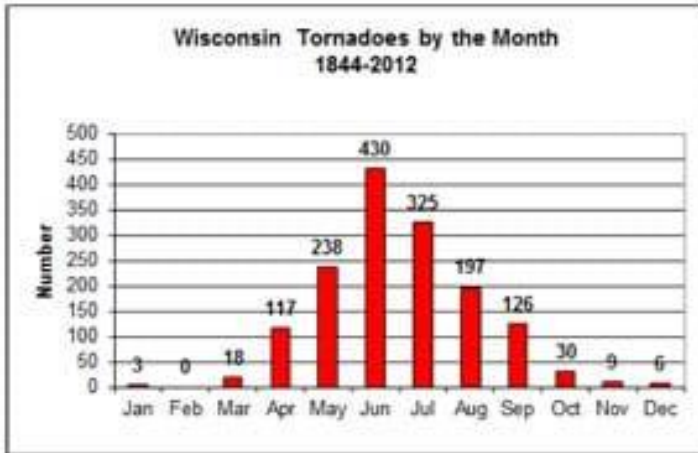
12/Graphing Testing Data

April 21, 2020

12/EDD
Lesson: **4/21/2020**

Objective/Learning Target: Students will be able to interpret the realationship between variables and interpret the rate of change within linear data.

There are many different types of graphs you may see in everyday life during your average day or week.

When you see a graph or a chart in documents such as newspapers and magazines, the authors are trying to condense a massive amount of data into a clear and easy-to-understand visual representation.

It is important to note that the author has made conscious decisions about how to create and display the graph. Our goal today is to think critically about graphs in order to understand everything their creators are trying to communicate, and clearly articulate the relationship between the variables presented

Let's focus primarily on data that has somewhat linear trends. We are going to think about some of the details embedded in linear data so that we can use appropriate language to communicate or data.
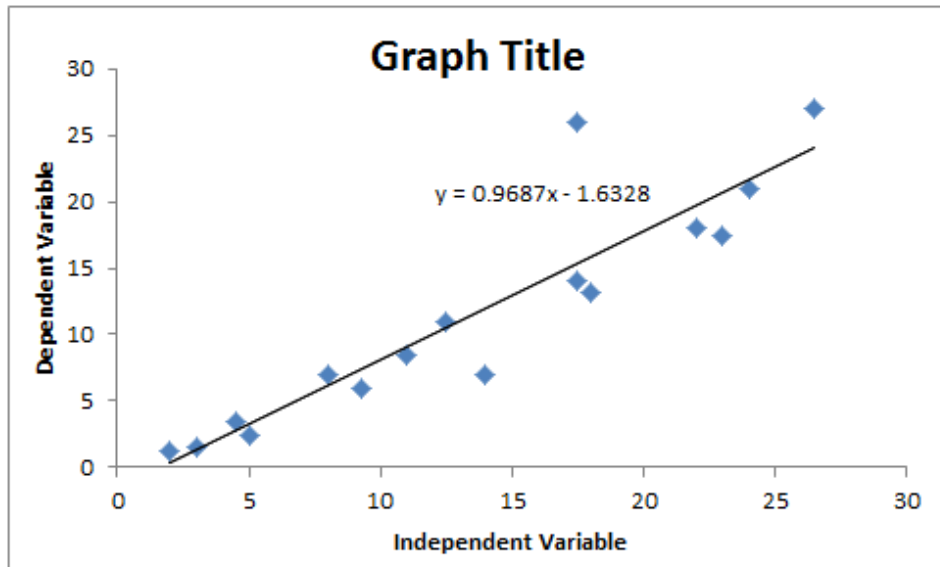
The x-axis generally displays the independent variable, while the y-axis shows the dependent variable. If a graph involves time, time is always an independent variable, since changes in time are not dependent on any other variables changing.

The dependent variable is a variable that changes based on the change in the independent variable. The graph displays the relationship between these two variables; it shows how the dependent variable changes based on the change in the independent variable.

Looking at our graph, we see data points for each observed dependent variable value and its corresponding independent variable value. Each point can be displayed as (independent variable value, dependent variable value), for example (8, 7) is a data point.

Graph Title

$y = 0.9687x - 1.6328$

Dependent Variable (y-axis)
Independent Variable (x-axis)
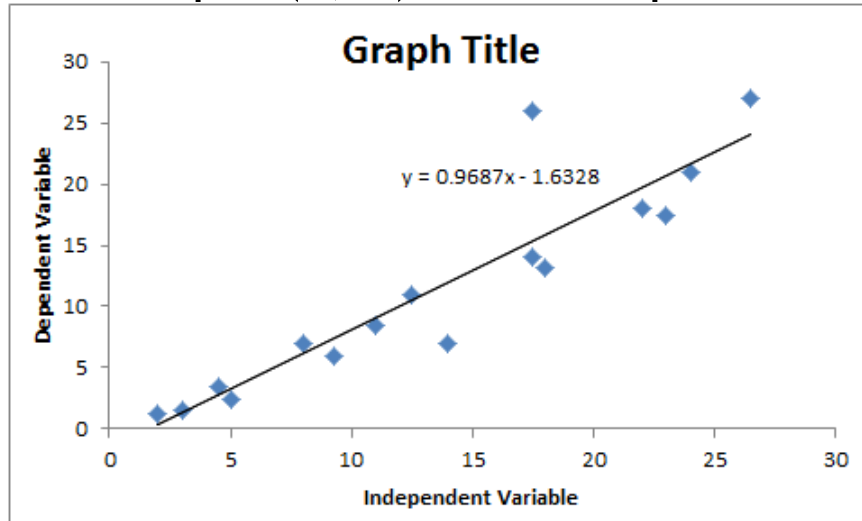
The graph also displays a best fit line for the data set. The line of best fit travels through the center of the linear trend of the data points.
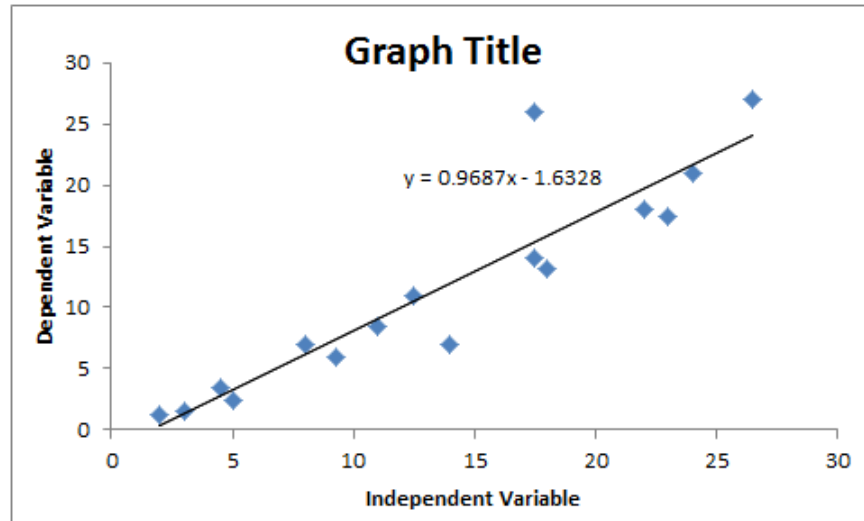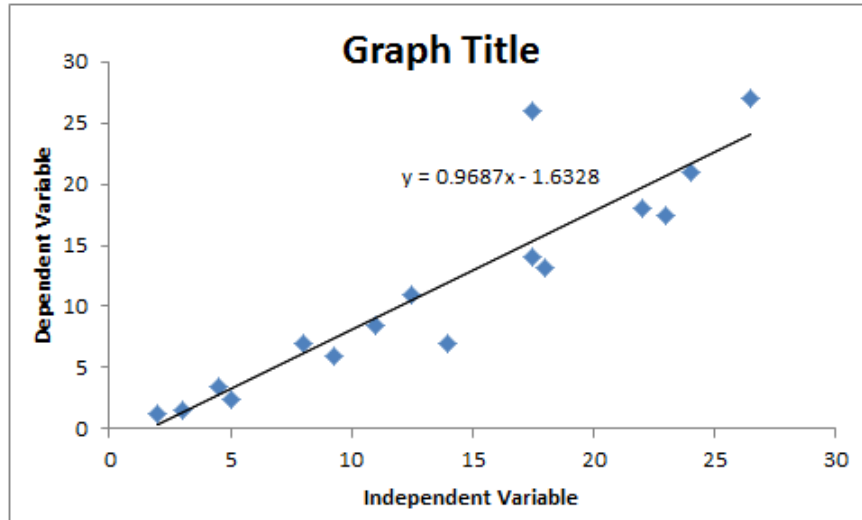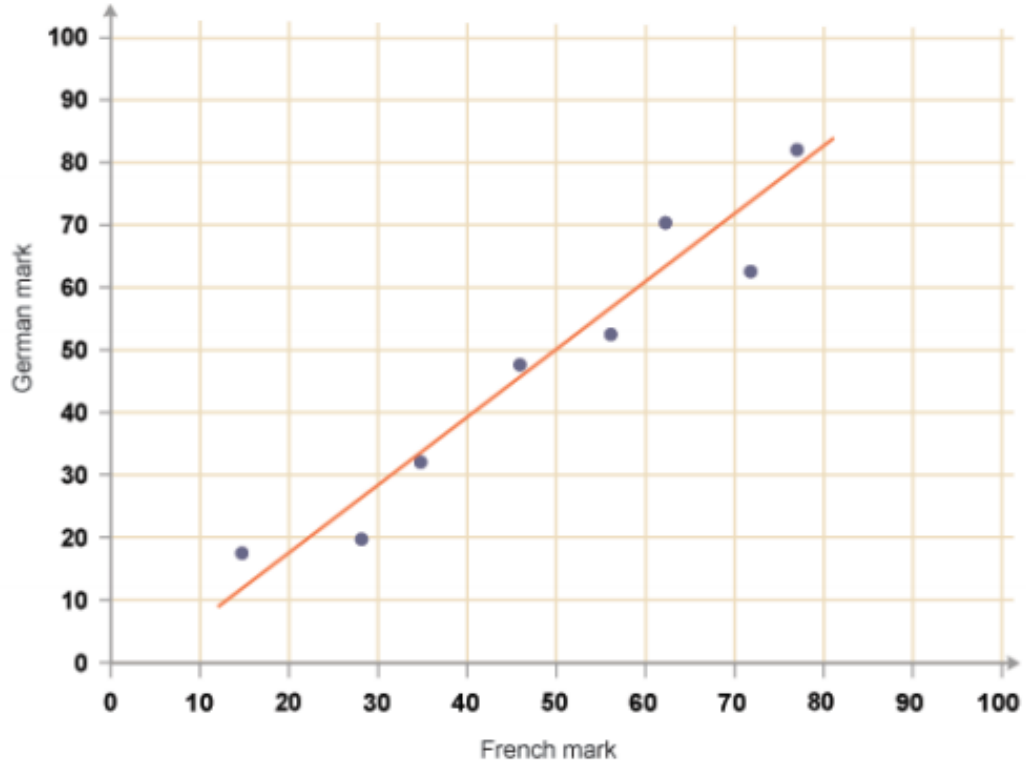
There is also a way to calculate the slope of the best fit line.

$$\text{slope} = m = \frac{change\ in\ y}{change\ in\ x} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_2}$$

Graph Title

y = 0.9687x - 1.6328

Dependent Variable

Independent Variable

Use the graph here to answer the questions on the next slide.

1. What is the independent variable for this graph?
2. What is the dependent variable for this graph?
3. What can you assume about the relationship between number of French scores and German scores?
4. What is the ordered pair for the data point on the far left and the data point on the far right?
5. Calculate the slope between those two points.
6. What would the expected German score be for a student who scored 50 in French?

Automatic graph generator

Choosing which type of graph to use