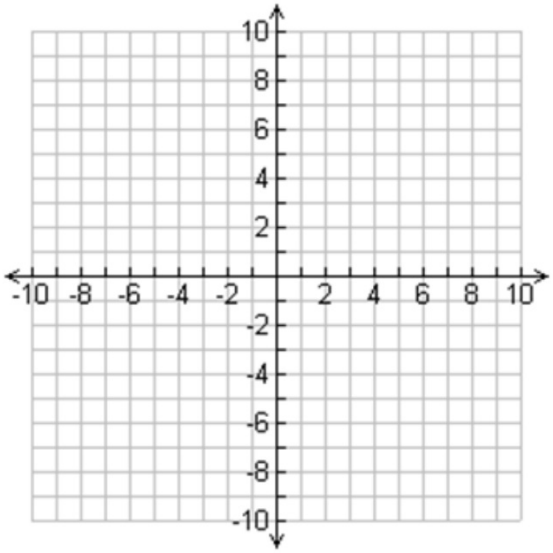
Bellwork

1. Graph the following points all on one coordinate plane:
   (2, 3), (0, 5), (-4, 2), (-1, 0), (-2, -2), (0, -6), (3, -4)



Scatter Plots

What is a scatter plot?

A scatter plot can be best described as a graph of a collection of points that are comparing two variables.

Why create a scatter plot?

Scatter plots are used to see if there is a connection between the two variables being observed or if the results are misleading.

Models Presented by Scatter Plots

1. Linear Models

2. Exponential Models

3. Quadratic Models

Linear Models

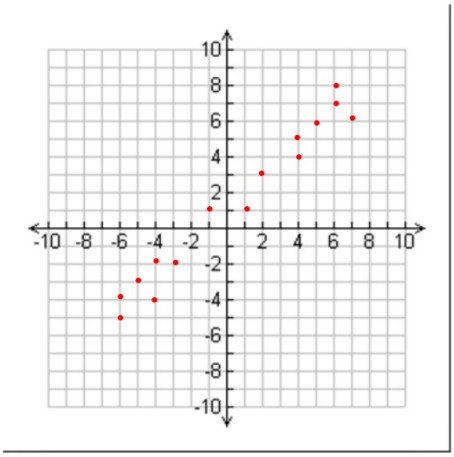
Description:

A linear model shows a consistent connection between the two variables that are being analyzed.

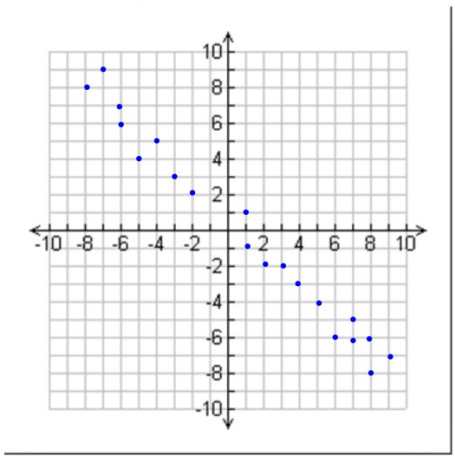
Graphically:

The graphed points will be in a line.

Linear Model Examples



Positive Correlation: The points go in a line and go up from the left to the right.



Negative Correlation: The points go in a line and go down from the left to the right.

Exponential Models

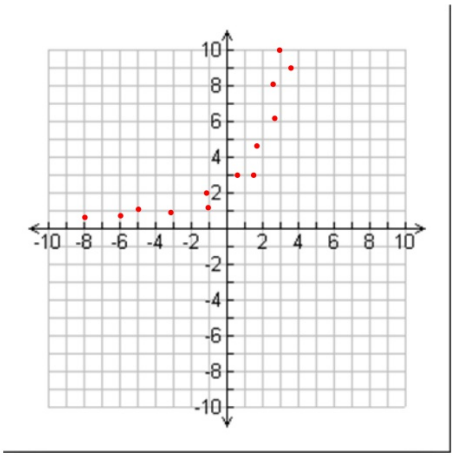
Description:

- An exponential growth model shows a slow increase before a rapid growth.
- An exponential decay model shows a rapid decrease before slowing down tremendously.

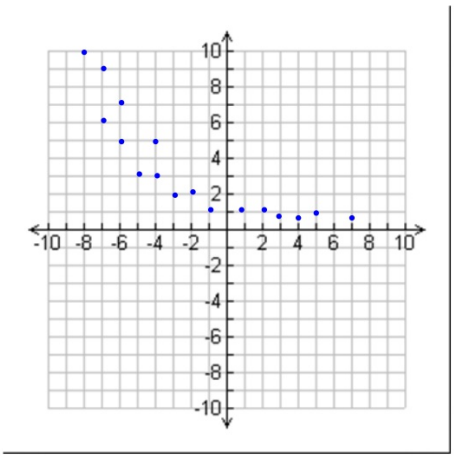
Graphically:

- Points increase slowly and then rapidly.
- Points decrease rapidly and then slowly.

Exponential Model Examples



Exponential Growth



Exponential Decay

Quadratic Models

Description:

A quadratic model shows a connection between two variables that increase, slows down, and then decreases.

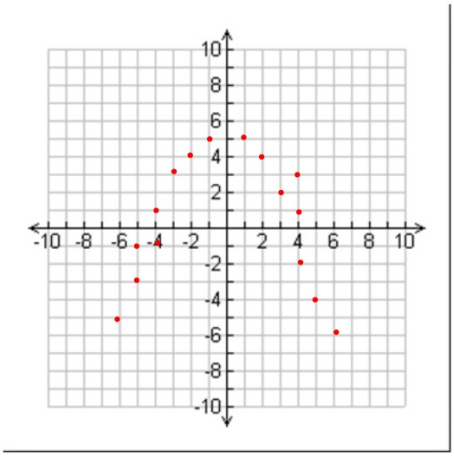
Or shows a connection between the two variables that decreases, slows down, and then increases.

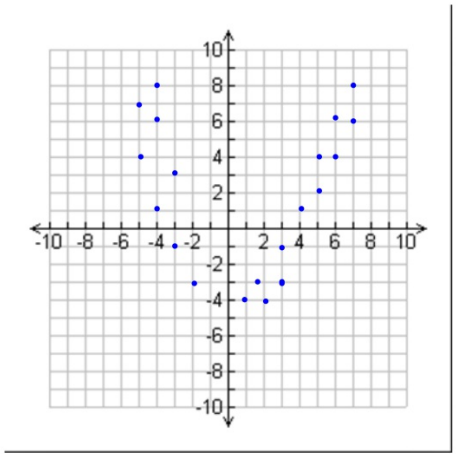
Graphically:

The graph will create an ∩ shape.

The graph will create a U shape.

Quadratic Model Examples





More About Scatter Plots

Could there be any other models that describe the connection between 2 variables?

Of course! There is a long list of models that could describe the connection between 2 variables, but the three mentioned in the previous slides are the ones we will focus on for this unit.

Will a scatter plot always show a connection between two variables?

No, sometimes variables are not related.