

Algebra I

Lesson 11.4 –Linear, Quadratic, and Exponential Models

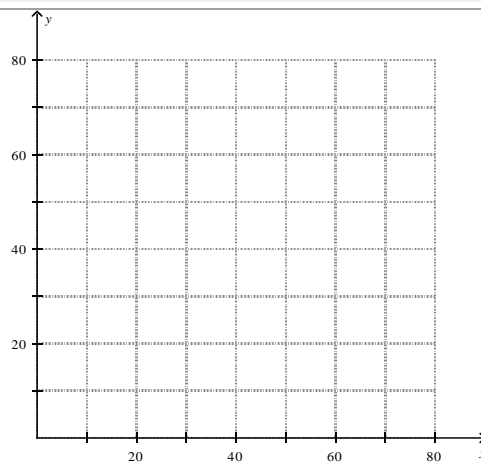
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People collect data from real world events. The data may be financial data comparing a company's stock growth over time, medical data comparing height over a period of years, car sales and profit, or what ever situation is being studied. In the end, they must decide what kind of relationship, if any, best describes the data.

Real world data is not always perfect. While the data may be best described by a linear function, the data may not have a constant rate of change if we were to check mathematically. We can always take the data and plot it on a graph to see which function best describes it.

Graph the temperature data relating degrees Celsius to degrees Fahrenheit. Which kind of model best describes the data?

C°	0	5	10	15	20
F°	32	41	50	59	68



While real world data is not always perfect, sometimes it is! So we can still look for a pattern in the data to make a determination that way. Don't forget the patterns we should see:

Linear Function	Quadratic Function	Exponential Function
constant first difference	constant second difference	constant ratio

Look for a pattern in the data to determine which kind of models best describes the data.

$$\{(-2, 10), (-1, 1), (0, -2), (1, 1), (2, 10)\}$$

$$\{(-2, 32), (-1, 8), (0, 2), (1, .5), (2, .125)\}$$