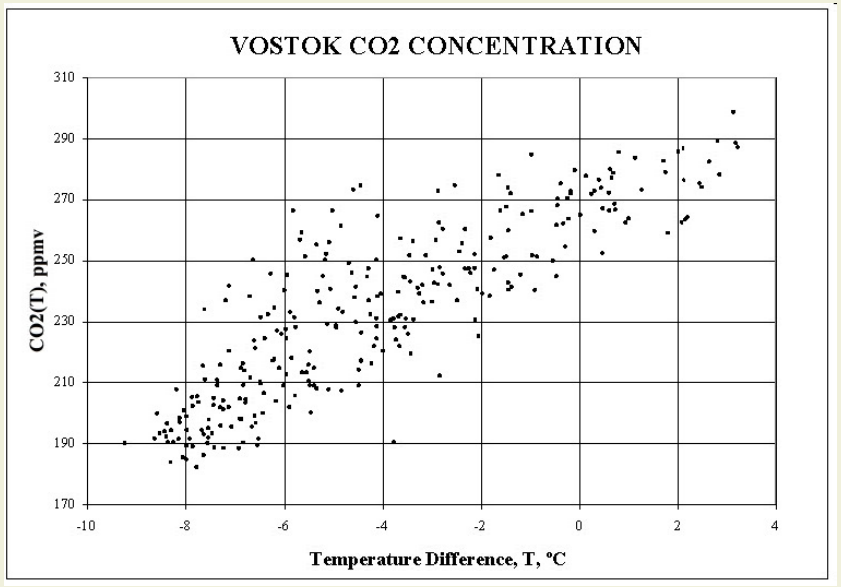
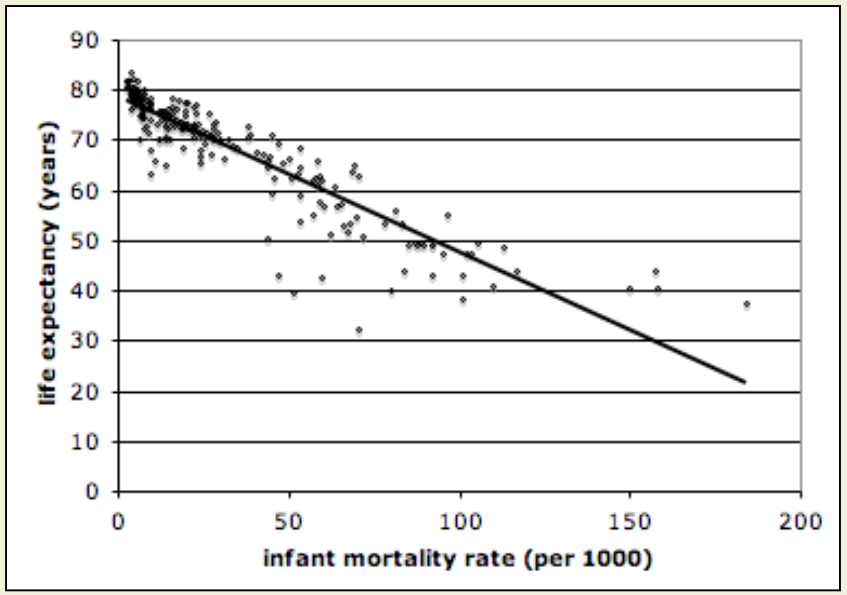
Scatter Plots

Scatter plots are graphs of paired sets of data (x,y). Each pair is represented by a point. Points are not connected.





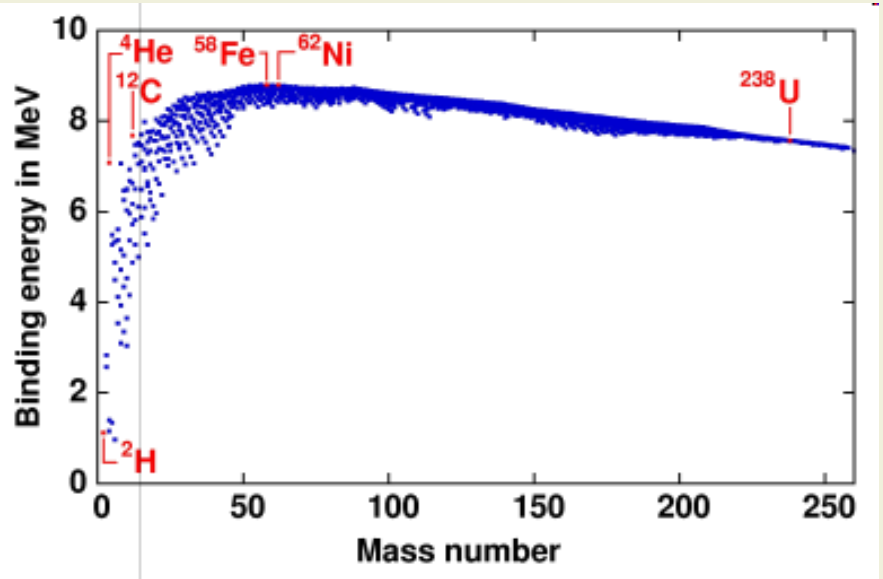
Positive Correlation

Negative Correlation

Correlation does not imply cause!

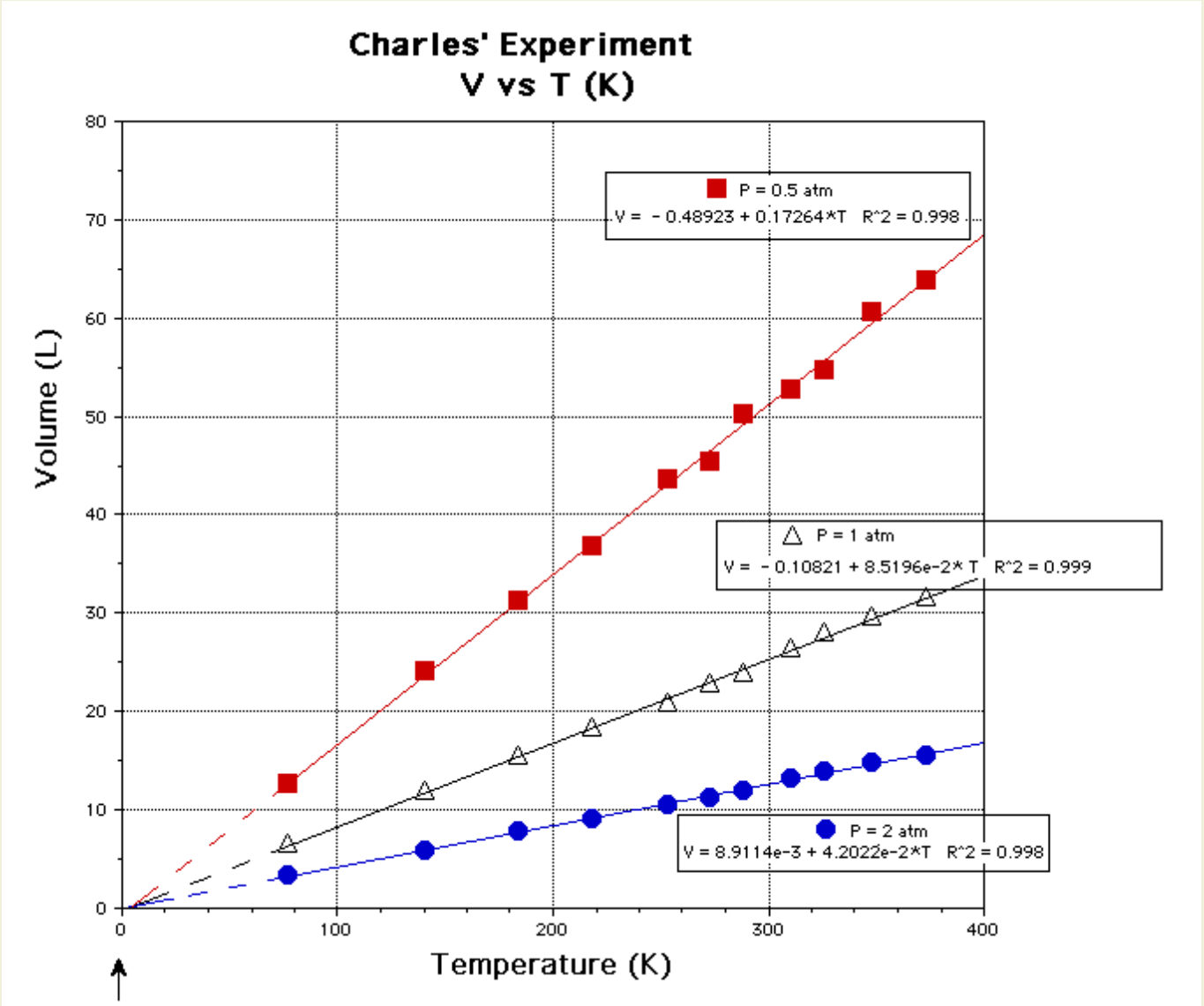
Non-Linear Correlation

Binding Energy per Nucleon vs Atomic Mass

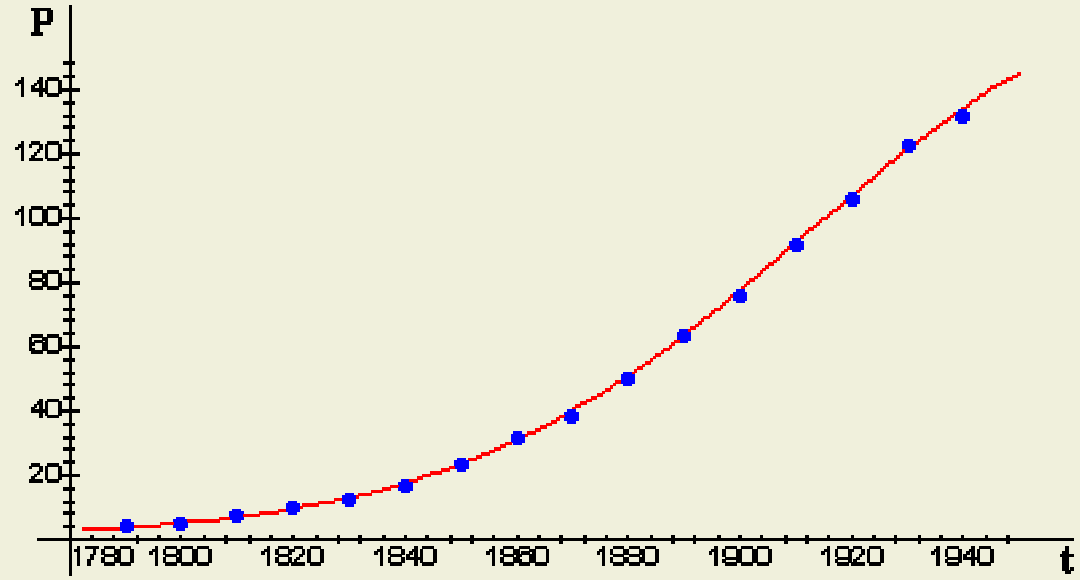


Non-linear correlation

Relations and Functions

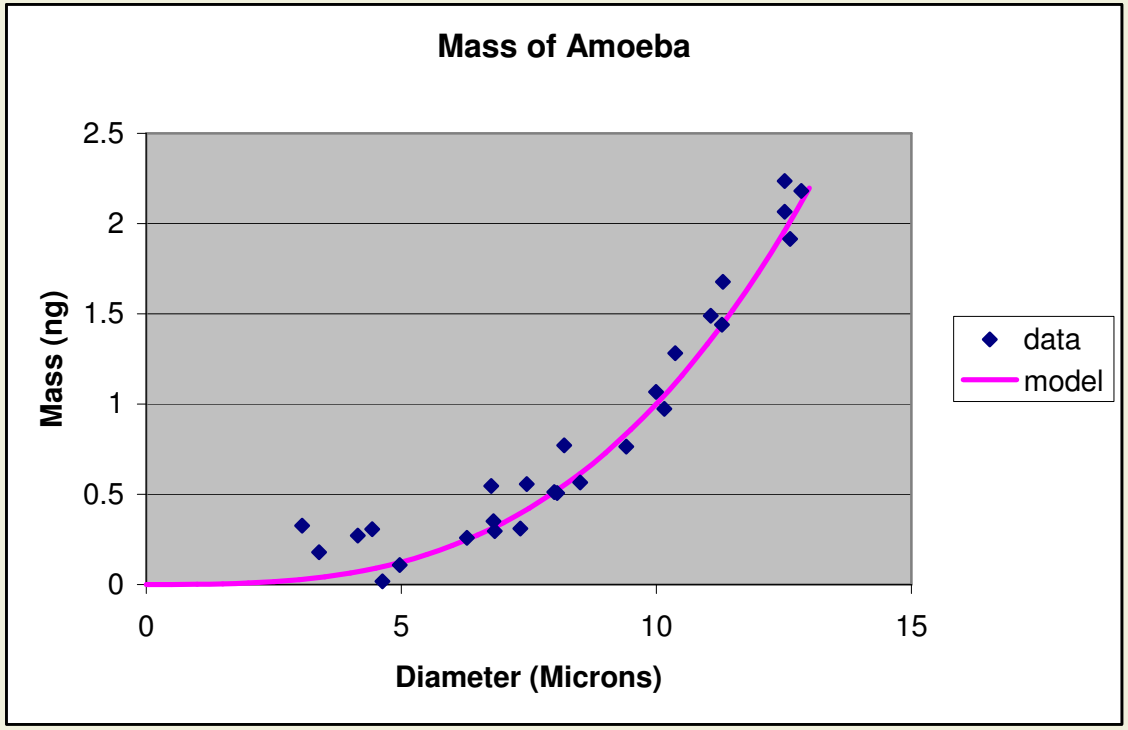


US population in millions versus time



Relations and Functions

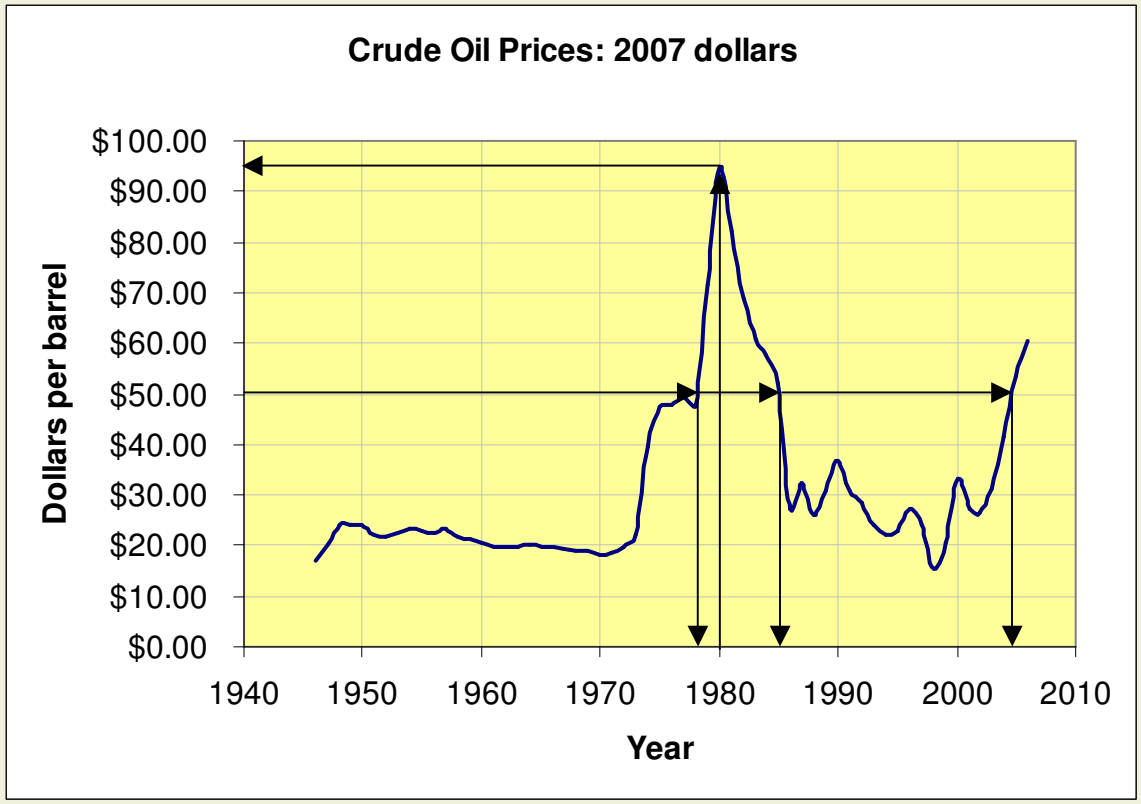
What function would be a good model for this data?



Relations and Functions

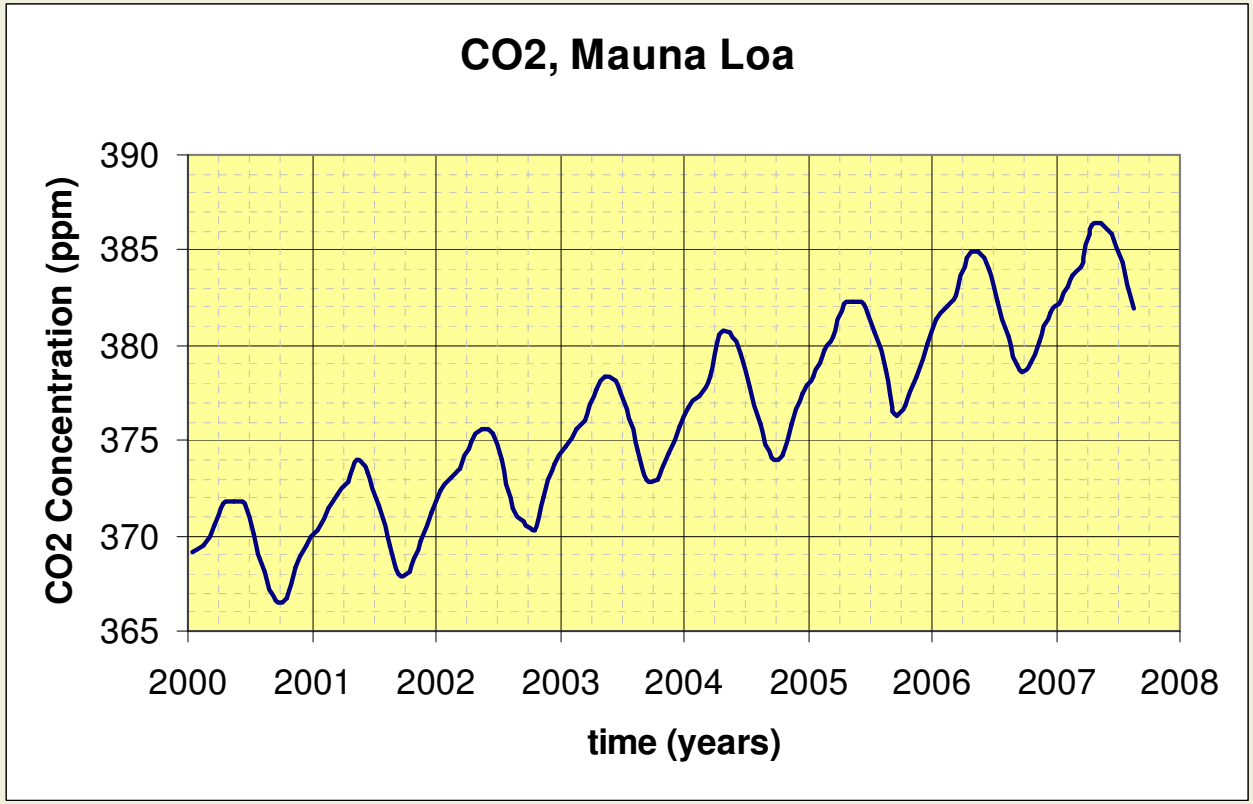
Consider the function *f* described by the graph of *y=f(x)* below, where *y* is the price of a barrel of oil and *x* is the time in years AD.

1. What is f(1970)?
2. If f(x)=50 find x.



Relations and Functions

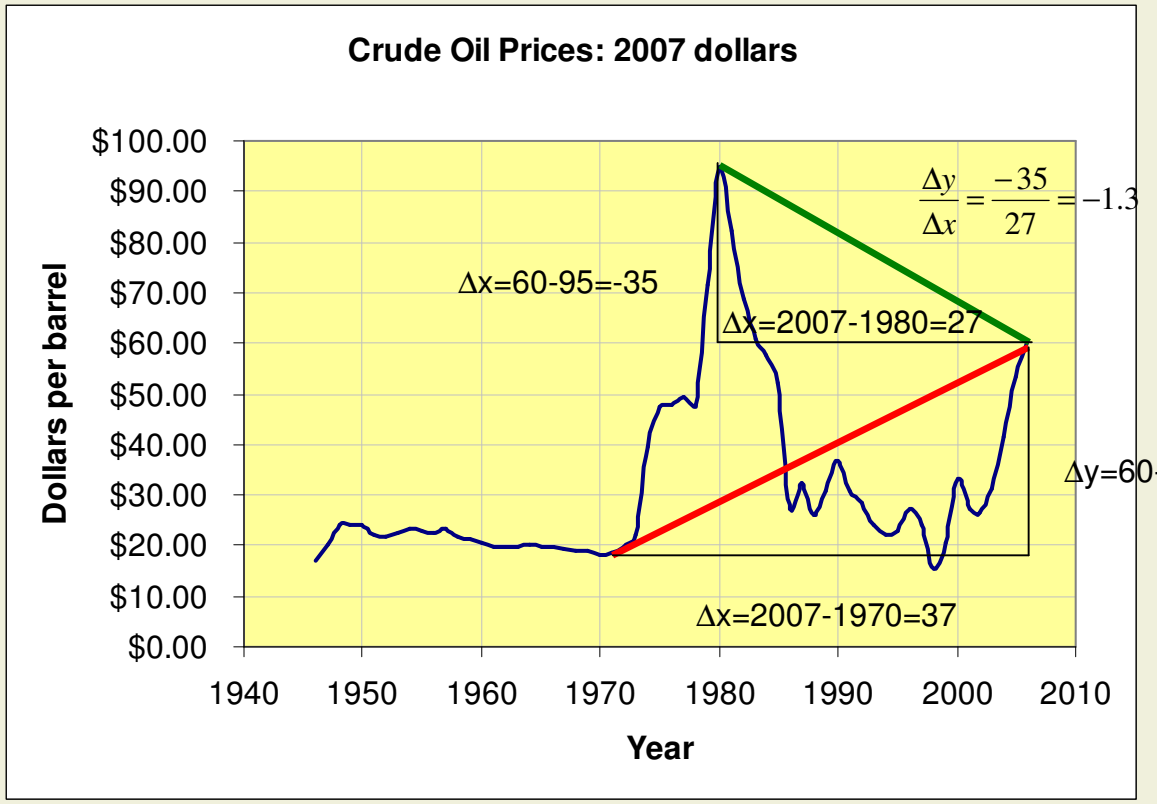
Consider the function *f* described by the graph of *y=f(x)* below, where *y* the atmospheric CO_2 concentration in (ppm) and *x* is the years AD.
1.What is f(2001), f(2007)?
2. If f(x)=385 find x.



Relations and Functions

Consider the function *f* described by the graph of *y=f(x)* below, where *y* is the price of a barrel of oil and *x* is the time in years AD.

1. What is the average rate of chance in prices between 1970 and 2007?
2. What is the average rate of change in prices between 1980 and 2007?



$$\frac{\Delta y}{\Delta x} = \frac{-35}{27} = -1.3$$

$$\frac{\Delta y}{\Delta x} = \frac{40}{37} = 1.1$$

Relations and Functions

1. Find the average rate of change in CO_2 concentration between January 1st 2001 and January 1st 2007.
2. Find the average rate of change in CO_2 concentration between April 1st 2004 and October 1st 2006.