**Facebook Users**

Facebook began in February 2004. By that December, there were 1 million users. The table below gives the number of Facebook users versus the number of years since Facebook began.

(http://newsroom.fb.com/content/default.aspx?NewsAreaId=20)

|  |  |  |
| --- | --- | --- |
| **Date** | **Years since Facebook Started** | **Number of Facebook Users****(millions)** |
| 12/04 | 0.83 | 1 |
| 12/05 | 1.83 | 6 |
| 12/06 | 2.83 | 12 |
| 12/07 | 3.83 | 58 |
| 12/08 | 4.83 | 145 |
| 12/09 | 5.83 | 360 |
| 12/10 | 6.83 | 608 |
| 12/11 | 7.83 | 845 |

1. Identify the variables in this situation.
2. Enter the data into your calculator and choose an appropriate window to view the data. The data should bend upward indicating that an exponential function may be the right choice for a model. The graph should look like this:



1. Write an equation for the exponential function that you think might model this data. Explain why you choose the parameters you used.



1. Now graph your equation from question 3 on your calculator. Sketch your graph on the graph of the data to the right. How well does your model fit the data? The WINDOW for this graph is $-1<x<9$ and $-140<y<990$.
2. Explain how you can change your equation to fit the data better.
3. Write your next attempt at an equation that models the data and sketch its graph.



1. Explain how you can change your equation to fit the data better.
2. Continue to try new equations to get an equation that you think fits the data very well. Write your final equation that models the data and sketch its graph.



1. Use your model to estimate the number of Facebook users there will be in 2020, if this trend continues. Write your estimate here.
2. Do you think your estimate for the number of Facebook users in 2020 is a good one? Why or why not?