Performance Assessment Task

Facebook Users

In 2012, people like Ben Foster and organizations like Bloomberg Business Week began predicting that Facebook would have 1 billion users by August of 2012. They were wrong.

Foster's Prediction: http://www.benphoster.com/facebook-to-1-billion-users-i-predict-august-16-2012/
Bloomberg's Prediction: http://www.businessweek.com/articles/2012-07-25/chasing-facebooks-next-billion-users

Imagine that you were a reporter in 2010. Your assignment is to examine the data below and make a prediction on when Facebook will hit a billion users. Complete the following, showing all relevant graphs and mathematical calculations.

Graph Exponential Functions

Month and Year	Month Number	Millions of Facebook Users
Dec-04	0	1
Dec-05	12	5.5
Dec-06	24	12
Apr-07	28	20
Oct-07	34	50
Aug-08	44	100
Jan-09	49	150
Feb-09	50	175
Apr-09	52	200
Jul-09	55	250
Sep-09	57	300
Dec-09	60	350
Feb-10	62	450

- The growth of Facebook users between December 2004 and February 2010 is shown in the table to the left.

- Graph this data and perform an exponential regression to determine the equation of the function that describes the data.

Use Exponential Equations
- Determine how many Facebook users there would have been in August 2012 if the growth of Facebook had continued at the same rate. Discuss the reasonableness of this growth.

Solve Exponential Equations
- If the number of Facebook users had continued at the same rate of growth as above, predict when the number of users would have reached 1 billion.

Rubric: Facebook Users

Student _____ **Date** _____

Level / Criteria	Excellent	Proficient	Adequate	Limited *	Insufficient/ Blank *
Graph data and determine the exponential function that best approximates the data. (Relations and Functions 6) [C, CN, PS, T, V]	Draws a **detailed** graph and determines a correct regression equation.	Draws a **sufficient** graph and determines a correct regression equation.	Draws a **simplistic** graph and determines a correct regression equation.	**Unable** to determine a regression equation.	No score is awarded because there is insufficient evidence of student performance based on the requirements of the assessment task.
Calculate the number of users and discuss the reasonableness of the answer (Relations and Functions 5) [C, CN, PS, R, T]	Applies the regression equation **correctly** to predict the number of users. Provides a **perceptive** discussion of the reasonableness of the answer.	Applies the regression equation in a **substantially correct** manner to predict the number of users. Provides a **thoughtful** discussion of the reasonableness of the answer.	Applies the regression equation in a **partially correct** manner to predict the number of user. Provides a **simplistic** discussion of the reasonableness of the answer.	**Unable** apply the regression equation function to predict the number of users.	
Solve an exponential equation (Relations and Functions 4) [C, CN, ME, R]	Solves the exponential equation **correctly** to predict when there will be one billion users.	Solves the exponential equation in a **substantially correct** manner to predict when there will be one billion users.	Solves the exponential equation in a **partially correct** manner to predict when there will be one billion users.	**Unable** to solve the exponential equation to predict when there will be one billion users.	

* When work is judged to be limited or insufficient, the teacher makes decisions about appropriate intervention to help the student improve.