Performance Assessment Task

Facebook Users

Imagine that you are a reporter in 2010. You have heard predictions that Facebook will have one billion users by the end of the year. Your editor has asked you to examine the data below, and decide whether or not you agree with this prediction. Provide your editor with your own prediction, supported by all relevant graphs and mathematical calculations.

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

Graph Data and Determine Regression Equation

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

Solve Exponential Equation

- Assuming that the number of Facebook users continues at the same rate of growth, use the growth model to predict when the number of users will reach one billion.

Fast forward to the present day… Your editor has asked you to do a follow-up article!

Calculate Number of Users

- Determine how many Facebook users there would be today if Facebook had continued to grow at the same rate.

Evaluate Model

- Discuss the reasonableness of this growth model. Is an exponential function the best model for this data?

Rubric: Facebook Users

Student _____ **Date** _____

Level / Criteria	Excellent	Proficient	Adequate	Limited *	Insufficient/ Blank *
Graph data and determine regression equation (Relations and Functions 6) [C, CN, PS, T, V]	Draws a **detailed** graph and determines a correct regression equation.	Draws a **relevant** 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.
Solve exponential equation (Relations and Functions 5) [C, CN, ME, PS, R, T]	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.	
Calculate number of users (Relations and Functions 5) [C, CN, ME, PS, R, T]	Applies the regression equation **correctly** to predict the number of users.	Applies the regression equation in a **substantially correct** manner to predict the number of users.	Applies the regression equation in a **partially correct** manner to predict the number of user.	**Unable** apply the regression equation function to predict the number of users.	
Evaluate model (Relations and Functions 5) [C, CN, PS, R, T]	Provides a **perceptive** discussion of the reasonableness of the growth model.	Provides a **thoughtful** discussion of the reasonableness of the growth model.	Provides a **simplistic** discussion of the reasonableness of the growth model.	Discussion of the reasonableness of the growth model is **questionable**.	

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