

Graph exponential Functions

Sample 1



Criterion 1 - Excellent

exponential function that best approximates data:
 $f(x) = 1.378 \times 1.0999^x$

Criterion 2,
Part 1 -
Excellent

If the growth had continued at the same rate, in August 2012 (month 92) there would have been 8814 million facebook users. I found this answer using a graphing calculator and looking what the value of y was when $x=92$. To verify my answer I used substitution $(1.378 \times 1.0999^{92})$ and the answer was very close. This growth is not very reasonable, but some of those people would die during this time, changing it. Also I feel that at a certain point everyone would know about facebook, therefore everyone who wanted facebook would have it already. Only new young people would get it, but they would be mostly cancelled out by people dying. :)

Criterion 2,
Part 2 -
Excellent

If the rate continued, it would have taken 70 months for there to be 1 billion users. I know this because I looked for the closest value of x when y = about 1000.

Criterion 3 - Excellent

Mathematics 30-2
Performance Assessment: Rubric
Facebook Users

Student Sample 1

Date _____

Level Criteria	4 Excellent	3 Proficient	2 Adequate	1 Limited *	Insufficient/ Blank *
<p>Graph data and determine the exponential function that best approximates the data. (Relations and Functions 6)</p> <p>[C, CN, PS, T, V]</p>	<p>Draws a detailed graph and determines a correct regression equation.</p> <p>The student's graph is clear and appropriately labeled. The regression equation is correct. The teacher might ask this student to provide a more specific title to this graph.</p>	<p>Draws a sufficient graph and determines a correct regression equation.</p>	<p>Draws a simplistic graph and determines a correct regression equation.</p>	<p>Unable to determine a regression equation.</p>	<p>No score is awarded because there is insufficient evidence of student performance based on the requirements of the assessment task.</p>
<p>Calculate the number of users and discuss the reasonableness of the answer (Relations and Functions 5)</p> <p>[C, CN, PS, R, T]</p>	<p>Applies the regression equation correctly to predict the number of users.</p> <p>The student correctly uses the regression equation, and explains both methods used.</p> <p>Provides a perceptive discussion of the reasonableness of the answer.</p> <p>The student's exploration of the reasonableness is thorough and perceptive.</p>	<p>Applies the regression equation in a substantially correct manner to predict the number of users.</p> <p>Provides a thoughtful discussion of the reasonableness of the answer.</p>	<p>Applies the regression equation in a partially correct manner to predict the number of user.</p> <p>Provides a simplistic discussion of the reasonableness of the answer.</p>	<p>Unable apply the regression equation function to predict the number of users.</p>	

Mathematics 30-2
Performance Assessment: Rubric

Facebook Users

<p>Solve an exponential equation (Relations and Functions 4) [C, CN, ME, R]</p>	<p>Solves the exponential equation correctly to predict when there will be one billion users.</p> <p>The student graphically determined the correct month when there will be one billion users.</p>	<p>Solves the exponential equation in a substantially correct manner to predict when there will be one billion users.</p>	<p>Solves the exponential equation in a partially correct manner to predict when there will be one billion users.</p>	<p>Unable to solve the exponential equation to predict when there will be one billion users.</p>	
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- * When work is judged to be limited or insufficient, the teacher makes decisions about appropriate intervention to help the student improve.