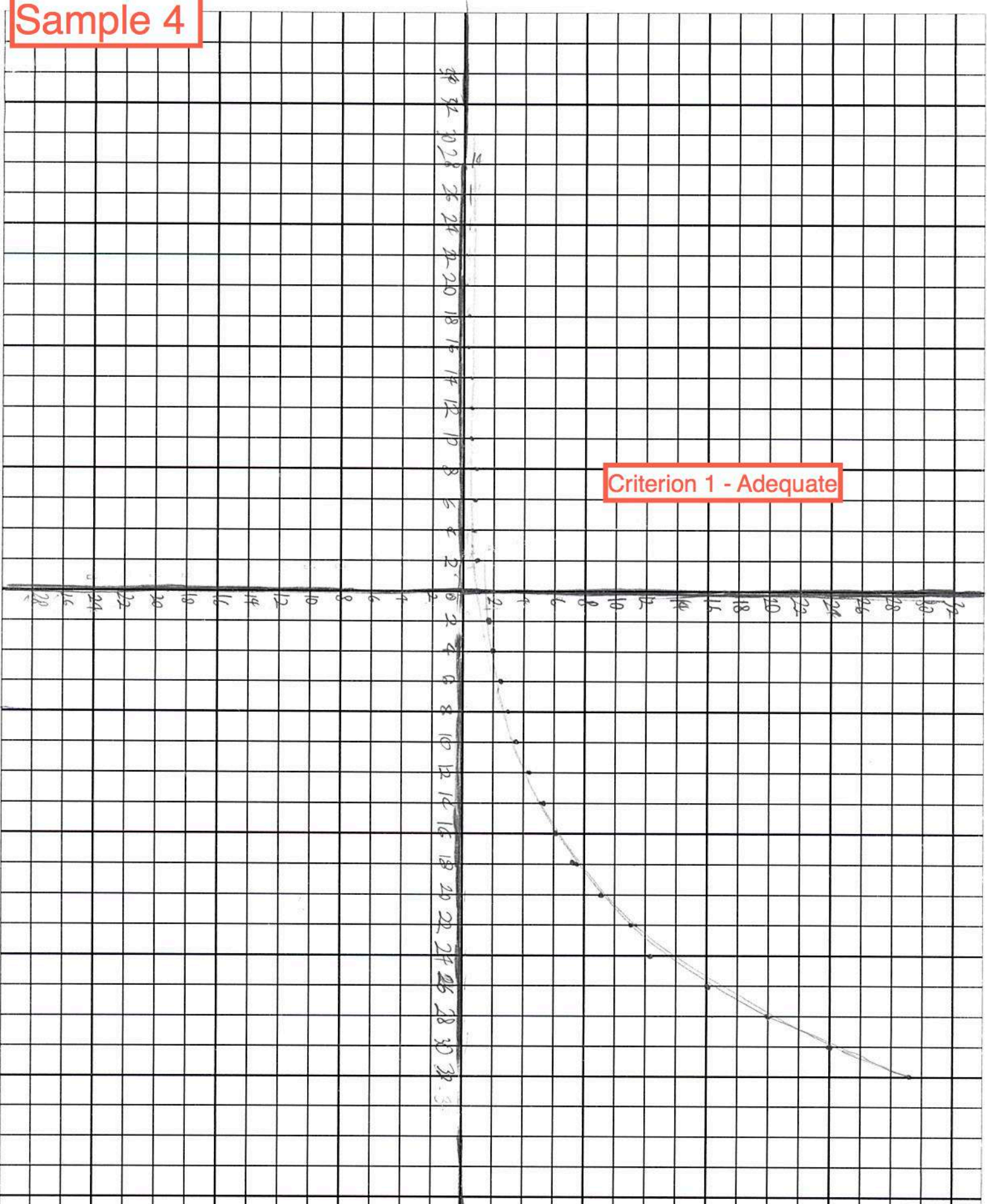


# Sample 4



## Unit 6 Performance Assessment Task

(Graph on separate page.)

Using exponential regression I determined the equation of the function that describes the growth of Facebook users Dec '04 - Feb '10.

$$1.3781681276376 \cdot 1.099938345283^x$$

I used this equation to determine how many users there would be in Aug'12 if the growth continued at the same rate.

Criterion 2, Part 1 - Excellent

I first stored my regression value into  $Y_1$  so that I could see the graph. I then figured out what month number August 2012 would be, which is Month 92. To find out what the number of Facebook users would be at Month 92, I calculated the X value of 92. (2nd TRACE 1: value.) When X was 92, Y was 8814.338 or 8814 users. This growth was reasonable to me because from what I saw in the information given to me I saw that the amount of users was starting to increase faster and faster.

Criterion 2, Part 2 - Adequate

I also used my equation to determine which number month the number of Facebook users would reach 1 billion. To do this I first figured out how many millions was a billion (1000). I then put 1000 as  $Y_2$  in the graph so that it would appear as a line along with the graph I got using my exponential function. I then used intersection (2nd TRACE 5: intersect) to see what X would be at the point where the two lines met. (continued on other side.)

When  $Y$  was 1000,  $X$  was 69.15185... or Month Number 69.

**Criterion 3 - Proficient**

**Mathematics 30-2**  
**Performance Assessment: Rubric**  
**Facebook Users**

Student \_\_\_\_\_ Sample 4 \_\_\_\_\_

Date \_\_\_\_\_

Level Criteria	4 Excellent	3 Proficient	2 Adequate	1 Limited *	Insufficient/ Blank *
<p><b>Graph data and determine the exponential function that best approximates the data.</b>            (Relations and Functions 6)</p> <p>[C, CN, PS, T, V]</p>	<p>Draws a <b>detailed</b> graph and determines a correct regression equation.</p>	<p>Draws a <b>sufficient</b> graph and determines a correct regression equation.</p>	<p>Draws a <b>simplistic</b> graph and determines a correct regression equation.</p> <p style="color: red;">The graph is simplistic because it is not labeled, titled and has questionable scaling. The regression equation is correct.</p>	<p><b>Unable</b> 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><b>Calculate the number of users and discuss the reasonableness of the answer</b>            (Relations and Functions 5)</p> <p>[C, CN, PS, R, T]</p>	<p>Applies the regression equation <b>correctly</b> to predict the number of users.</p> <p style="color: red;">The regression equation is applied correctly.</p> <p>Provides a <b>perceptive</b> discussion of the reasonableness of the answer.</p>	<p>Applies the regression equation in a <b>substantially correct</b> manner to predict the number of users.</p> <p>Provides a <b>thoughtful</b> discussion of the reasonableness of the answer.</p>	<p>Applies the regression equation in a <b>partially correct</b> manner to predict the number of user.</p> <p>Provides a <b>simplistic</b> discussion of the reasonableness of the answer.</p> <p style="color: red;">The student fails to address the context of this situation in examining whether the growth could continue indefinitely.</p>	<p><b>Unable</b> apply the regression equation function to predict the number of users.</p>	

**Mathematics 30-2**  
**Performance Assessment: Rubric**

**Facebook Users**

<p><b>Solve an exponential equation</b> (Relations and Functions 4)  [C, CN, ME, R]</p>	<p>Solves the exponential equation <b>correctly</b> to predict when there will be one billion users.</p>	<p>Solves the exponential equation in a <b>substantially correct</b> manner to predict when there will be one billion users.</p> <p style="color: red;">The student has used the equation correctly, but failed to consider appropriate rounding for the context of this situation.</p>	<p>Solves the exponential equation in a <b>partially correct</b> manner to predict when there will be one billion users.</p>	<p><b>Unable</b> 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.