

Looking Ahead: Algebra 2 Unit 7

The questions below are examples of the type of questions you'll see on your **Semester 1 Final**. This is how these tests will ask you to apply your skills from **Unit 7**, as well as your common sense math skills. They are structured in a way that is deliberately complicated, but the skills are the same as what you have learned up to this point.

Semester 1 Final Examples

1.	Use inverse operations to write the inverse of $f(x) = \frac{x}{2} + \frac{3}{4}$	4.	What is the solution to the equation $7^x = 18$? A. $x = 11$ C. $\log_{10} 11$ B. $\log_{10} 7 + \log_{10} 18$ D. $\frac{\log_{10} 18}{\log_{10} 7}$
2.	Write the logarithmic equation $\log_5 625 = 4$ in exponential form.	5.	Tell whether the function $y = 16 \left(\frac{3}{2}\right)^x$ shows growth or decay. Then, graph the function.
3.	Evaluate $\log_7 \frac{1}{343}$ by using mental math.	6.	Solve $27^{x+6} = 81^{x-2}$.

7.	<p>In 2005, the population of a small town was 1,200. If the annual rate of increase is about 0.3%, write an expression that represents the population 7 years later.</p>	10.	<p>Which is the first incorrect step in simplifying $\log_3 \frac{27}{243}$?</p> <p>Step 1: $\log_3 \frac{27}{243} = \log_3 27 - \log_3 243$</p> <p>Step 2: $= 9 - 5$</p> <p>Step 3: $= 4$</p>										
8.	<p>Simplify the expression $\log_4 1024$.</p>	11.	<p>A student showed the following steps in his solution of the equation below, but his answer was not correct. Which is his first incorrect step in solving this equation?</p> $\log_3(3x^2 - 13x + 4) - \log_3(x - 4) = 3$ <p>Step 1: $\log_3(3x - 1)(x - 4) - \log_3(x - 4) = 3$</p> <p>Step 2: $\log_3(x - 4) = 3$</p> <p>Step 3: $x - 4 = 27$</p> <p>Step 4: $x = 31$</p>										
9.	<p>Determine whether f is an exponential function of x of the form $f(x) = ab^x$. If so, find the constant ratio.</p> <table border="1" data-bbox="199 1142 794 1207"> <tbody> <tr> <td>x</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>$f(x)$</td> <td>0.75</td> <td>2.4</td> <td>7.68</td> <td>24.576</td> </tr> </tbody> </table> <p>A. The second differences are not constant. The data set is not exponential.</p> <p>B. The ratio of the successive first differences is constant. $f(x)$ is a linear function of x.</p> <p>C. The data set is exponential with a constant ratio of 3.2.</p> <p>D. The data set is exponential with a constant ratio of 2.4.</p>	x	-1	0	1	2	$f(x)$	0.75	2.4	7.68	24.576		
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