NAME:_____

1. Evaluate $\log_2 22$. Round your answer to the nearest hundredth.

   [A] 4.46 [B] 0.22 [C] 0.69 [D] 3.09

2. Evaluate: $\log_3\left(\frac{1}{27}\right)$

   [A] 4 [B] –3 [C] –4 [D] 3

3. What is the value of $\log_7 2401$?

   [A] 16,807 [B] 343 [C] 4 [D] 7

4. Approximate the value to the nearest .0001: $\log_{(1/5)} 25$

   [A] –3.2189 [B] –2.0000

   [C] –0.5000 [D] –1.6094

5. Evaluate: $\log_2 8$

6. Evaluate $\log_3 13$. Round your answer to the nearest hundredth.

7. Find the largest integer that is less than $\log(23)$.

8. Compare the quantity in Column A with the quantity in Column B.

Column A	Column B
$\log_{10} 1000$	$\log_5 625$

   [A] The quantity in Column A is greater.

   [B] The quantity in Column B is greater.

   [C] The two quantities are equal.

   [D] The relationship cannot be determined on the basis of the information supplied.

9. A company with loud machinery needs to cut its sound intensity to 46% of its original level. By how many decibels should the loudness be reduced? Use the formula $L = 10\log\frac{I}{I_0}$.

10. A construction explosion has an intensity *I* of $1.75\times10^{-2}\frac{W}{m^2}$. What is the loudness of the sound in decibels? (Use $L = 10\log\frac{I}{I_0}$ where *I* is the intensity of the sound in watts per square meter. Use $I_0 = 10^{-12}\frac{W}{m^2}$.)

[1] A

[2] B

[3] C

[4] B

[5] 3

[6] 2.33

[7] 1

[8] B

[9] 3.372 decibels

[10] 102.4 decibels