

## Question #57018, Math / Algebra

6: If  $\log 55 = 1.7$ , what is the value, of  $\log_{1000} 55$ ?

- A: 0.05801
- B: 0.00174
- C: 0.5801
- D: 0.0174

$$\log 55 = \log_{10} 55 = 1.7$$

$$\log_{1000} 55 = \log_{10^3} 55 = \frac{1}{3} \log_{10} 55 = \frac{1}{3} * 1.7 \approx 0.5801$$

Answer: C

7: Let  $\log_b A = 1$ ;  $\log_b C = 3$ ;  $\log_b D = 4$

What is the value of  $\log_b(A^5 C^2 / D^6)$ ?

- A: 26
- B: -13
- C: 0

D: There is not enough information to answer the question.

$$\begin{aligned} \log_b \left( \frac{A^5 C^2}{D^6} \right) &= \log_b A^5 + \log_b C^2 - \log_b D^6 = 5 \log_b A + 2 \log_b C - 6 \log_b D \\ &= 5 * 1 + 2 * 3 - 6 * 4 = -13 \end{aligned}$$

Answer: B

8: If  $\log M/N = 4$  and  $\log P/N = 7$ , what can you say about the relationship between M and P?

- A:  $P = 1000M$
- B:  $P = 100M$
- C:  $P = 3M$
- D:  $M = 3P$

$$\log \frac{M}{N} = 4, \log \frac{P}{N} = 7$$

$$\log \frac{M}{N} = \log M - \log N = 4 \Rightarrow \log N = \log M - 4$$

$$\log \frac{P}{N} = \log P - \log N = 7 \Rightarrow \log N = \log P - 7$$

$$\log M - 4 = \log P - 7 \Rightarrow \log P - \log M = 3 \Rightarrow \log \frac{P}{M} = 3$$

$$10^3 = \frac{P}{M} \Rightarrow P = 1000M$$

Answer: A

9: Solve the following equation for x:

$$\log x + \log(x+2) = \log(3x)$$

A: There are no solutions

B:  $x = 0$

C:  $x = 0, 1$

D:  $x = 1$

$$\log x + \log(x + 2) = \log 3x$$

$$\log(x(x + 2)) = \log 3x$$

$$x(x + 2) = 3x$$

$$x^2 + 2x - 3x = 0$$

$$x^2 - x = 0$$

$$x(x - 1) = 0$$

$$x = 1, x = 0$$

Answer: C

10: Complete the sentence below:

In 25 is the power to which \_\_\_\_\_ must be raised in order to produce a value of 25. \_\_\_\_\_

Answer:

In 25 is the power to which e (exponent) must be raised in order to produce a value of 25.