Logarithm-2

1. If $\log X/(a^2 + ab + b^2) = \log Y/(b^2 + bc + c^2) = \log Z/(c^2 + ca + a^2)$, then $X^{a-b}.Y^{b-c}.Z^{c-a} = ?$

A. 0 B. -1 C. 1 D. 2

2. If $\log X = (\log Y)/2 = (\log Z)/5$, then $X^4.Y^3.Z^{-2}$ =?

A. 2 B. 10 C. 1 D. 0

3. If $\log_n 48 = a$ and $\log_n 108 = b$. What is the value of $\log_n 1296$ in terms of a and b?

A. $2(2a + b)/5$

B. $(a + 3b)/5$

C. $4(2a + b)/5$

D. $2(a + 3b)/5$

4. What is the value of X, if

$1/(\log_{442/441} X) + 1/(\log_{443/442} X) + 1/(\log_{444/443} X) + \ldots +$
$1/(\log_{899/898} X) + 1/(\log_{900/899} X) = 2$?

A. 2/21 B. 1 C. 7/100 D. 10/7

5. Solve for X, $\log_{10}X + \log_{\sqrt{10}} X + \log_{3\sqrt{100}} X = 27$

A. 1 B. 10^4 C. 10^6 10

6. If $(4.2)^x = (0.42)^y = 100$, then $(1/x) - (1/y) =$

A. 1 B. 2 C. ½ D. -1

7. If $A = \log_{27} 625 + 7\log_{11} 13$ and $B = \log_9 125 + 13\log_{10} 7$ then which of the following is true ?

A. $A > B$ B. $A < B$ C. $A = B$ D. can't say

8. $\log_9 (3\log_2 (1 + \log_3 (1 + 2\log_2 x))) = 1/2$. Find x.

A. 4 B. 12 C. 1 D. 2

9. In which of the following $m > n$

(A) $m = (\log_2 5)^2$ & $n = \log_2 20$

(B) $m = \log_{10} 2$ & $n = \log_{10} 3\sqrt{10}$

(C) $m = \log_{10} 5 . \log_{10} 20 + (\log_{10} 2)^2$ & $n = 1$

(D) $m = \log_{1/2} (1/3)$ & $n = \log_{1/3} (1/16)$

10. If $\log_3[\log_2 (x^2 - 4x - 37)] = 1$, where ‘x’ is a natural number, find the value of x.

A. 9 B. 10 C. 7 D. 4

11. If $3^{(X-2)} = 5$ and $\log_{10} 2 = 0.3010$, $\log_{10} 3 = 0.4771$, then X =?

A. 1 + (2218/4771)

B. 2+ (2218/4771)

C. 2 + (6990/4771)

D. None of these

12. If $\log_{30} 3 = p$ and $\log_{30} 5 = q$, then, how is $\log_{30} 8$ expressed in terms of p and q

A. $3 – 3(p + q)$ B. $5p + 2q – 1$ C. $p + q - 2$

D. None of these

13. $\log_3 x + \log_x 3 = 17/4$. Find the value of x.

A. 3^4 B. $3^{1/4}$ C. 3^4 or $3^{1/4}$ D. $3^{1/3}$

14. If x, y, z be positive real numbers such that $\log_{2x} z = 3$, $\log_{5y} z = 6$ and $\log_{xy} z = 2/3$ then the value of z is in the form of m/n in lowest form then find value of n – m

A. 7 B. 5 C. 3 D. 9

15. If x, y and z are the sides of a right angled triangle, where ‘z’ is the hypotenuse, then find the value of $(1/\log_{x+z} y) + (1/\log_{z-x} y)$

A. 1 B. 2 C. 3 D. 4

16. If $\log_{10}87.5 = 1.9421$, then the number of digits in $(875)^{10}$ is?

A. 30 B. 28 C. 33 D. 27

17. If $\log_2 = 0.30103$ and $\log_3 = 0.4771$, then number of digits in 648^5 is?

A. 12 B. 13 C. 14 D. 15

18. If no. of zeroes after decimal in $(0.15)^{20}$ is ab. Find b – a.

(Assume log 2 = 0.3010, log 3 = 0.4771)

A. 3 B. 4 C. 5 D. 6

19. Find the number of digits in 8^100 ?

A. 90 B. 91 C. 92 D. 100

- 20. Find the value of z?
- 1. $10 + \log_z x = \log_x z$

2. x= 2

- A. Statement 1 ALONE is sufficient, but statement 2 alone is not sufficient to answer the question asked.
- B. Statement 2 ALONE is sufficient, but statement 1 alone is not sufficient to answer the question asked.
- C. BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient.
- D. EACH statement ALONE is sufficient to answer the question asked.
- E. Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

- 21. How the value of log 144 ?
- 1. log 2 = 0.301
- 2. log 3= 0.477

- A. Statement 1 ALONE is sufficient, but statement 2 alone is not sufficient to answer the question asked.
- B. Statement 2 ALONE is sufficient, but statement 1 alone is not sufficient to answer the question asked.
- C. BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient.
- D. EACH statement ALONE is sufficient to answer the question asked.
- E. Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

- 22. Find the number of digits in 9^98?
- 1. log2= 0.3010
- 2. log3= 0.477

- A. Statement 1 ALONE is sufficient, but statement 2 alone is not sufficient to answer the question asked.
- B. Statement 2 ALONE is sufficient, but statement 1 alone is not sufficient to answer the question asked.
- C. BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient.
- D. EACH statement ALONE is sufficient to answer the question asked.
- E. Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

- 23. Find the value of K?
- 1. $\log_{81} 25 = k \log_3 625$
- 2. $\log_{729} 5 = k \log_3 125$

- A. Statement 1 ALONE is sufficient, but statement 2 alone is not sufficient to answer the question asked.
- B. Statement 2 ALONE is sufficient, but statement 1 alone is not sufficient to answer the question asked.
- C. BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient.
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- E. Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

- 24. Find the value of x + y?
- 1. log x /logy= log 125/ log 343
- 2. log y/log 16 = log 25/log 49

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- B. Statement 2 ALONE is sufficient, but statement 1 alone is not sufficient to answer the question asked.
- C. BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient.
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- E. Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

25.

If $x = y^2 = z^3 = w^4 = u^5$, then find the value of $\log_x xyzwu$.

A] $2\frac{17}{60}$ B] $1\frac{11}{120}$ C] 32 D] $2\frac{7}{30}$

26.

If $\log_{10} 242 = a$, $\log_{10} 80 = b$ and $\log_{10} 45 = C$, express $\log_{10} 36$ in terms of a, b, c.

A] $\frac{(C-1)(3C+b-4)}{2}$

B] $\frac{(C-1)(3C+b-4)}{3}$

C] $\frac{(C-1)(3C-b-4)}{2}$

D] None of these