

KHAN GLOBAL STUDIES

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Defence (Mathematics)

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Logarithms DPPS-2

- If $\frac{\log_{10} a}{2} = \frac{\log_{10} b}{3} = \frac{\log_{10} c}{5}$, then $bc =$
(a) a (b) a^2
(c) a^3 (d) a^4
- If $\log_4 5 = x$ and $\log_5 6 = y$, then $\log_2 3$ is equal to
(a) $2xy + 1$ (b) $2xy - 1$
(c) $2x + 1$ (d) $2y + 1$
- If $\log_3 y = x$ and $\log_2 z = x$, then 72^x is equal to
(a) yz^3 (b) y^2z^3
(c) y^3z^2 (d) y^3z^3
- If $x = \log_{0.1} 0.001$, $y = \log_9 81$, then $\sqrt{x} - 2\sqrt{y}$ is equal to
(a) $3 - 2\sqrt{2}$ (b) $\sqrt{3} - 2$
(c) $\sqrt{2} - 1$ (d) $\sqrt{2} - 2$
- If a and b are positive real numbers other than unity, then the least value of $|\log_b a + \log_a b|$, is
यदि a और b दो धनात्मक संख्याएँ हैं जो 1 नहीं हैं तब $|\log_b a + \log_a b|$ का न्यूनतम मान है।
(a) 0 (b) 1
(c) 2 (d) None of these
- If a, b, c are positive real numbers, then $\frac{1}{\log_{ab} abc} + \frac{1}{\log_{bc} abc} + \frac{1}{\log_{ca} abc} =$
यदि a, b और c धनात्मक संख्याएँ हैं तब $\frac{1}{\log_{ab} abc} + \frac{1}{\log_{bc} abc} + \frac{1}{\log_{ca} abc} =$
(a) 0 (b) 1
- (c) 2 (d) None of these
- If $\log_3 a \times \log_a x = 4$, then x is equal to
(a) 64 (b) 81
(c) a^2 (d) None of these
- If $x = 27$ and $y = \log_3 4$, then x^y equals
(a) 64 (b) 16
(c) $\frac{3}{7}$ (d) $\frac{1}{16}$
- If $\log_3 x + \log_9 x^2 + \log_{27} x^3 = 9$, then $x =$
(a) 3 (b) 9
(c) 27 (d) None of these
- The value of $2^{\log_3 5} - 5^{\log_3 2}$ is
(a) 2 (b) -1
(c) 1 (d) 0
- If $y = a^{\frac{1}{1-\log_a x}}$, $z = a^{\frac{1}{1-\log_a y}}$ and $x = a^k$, then $k =$
(a) $\frac{1}{1-\log_a z}$ (b) $\frac{1}{1-\log_a z}$
(c) $\frac{1}{1+\log_z a}$ (d) $\frac{1}{1-\log_z a}$
- If $\frac{\log_a x}{\log_{ab} x} = 4 + k + \log_a b$, then $k =$
(a) 0 (b) 1
(c) -2 (d) -3
- The solution set of $\log_2 |4 - 5x| > 2$, is $\log_2 |4 - 5x| > 2$ का हल समुच्चय है।
(a) $(\frac{8}{5}, \infty)$ (b) $(\frac{8}{5}, \frac{4}{5})$
(c) $(-\infty, 0)$ (d) None of these

14. If $\log_{0.3}(x-1) < \log_{0.09}(x-1)$, then x lies in the interval.

यदि $\log_{0.3}(x-1) < \log_{0.09}(x-1)$ तब x किस अन्तराल में स्थित है।

- (a) $(2, \infty)$ (b) $(1, 2)$
(c) R (d) $(2, \infty)$

15. If $\frac{1}{\log_2 a} + \frac{1}{\log_4 a} + \frac{1}{\log_8 a} + \frac{1}{\log_{16} a} + \dots + \frac{1}{\log_{2^n} a} = \frac{n(n+1)}{\lambda}$, then λ equals

- (a) $\log_2 a$ (b) $\log_a 4$
(c) $\log_2 a^2$ (d) None of these

16. The values of x satisfying $x^{\log_5 x} > 5$ lie in the interval

- (a) $(0, \infty)$ (b) $(5, \infty)$
(c) $(1, \infty)$ (d) $(1, 2)$

17. The set of real values of x satisfying $\log_{0.2}\left(\frac{x+2}{x}\right) \leq 1$ is

x के वास्तविक मानों का समुच्चय जो $\log_{0.2}\left(\frac{x+2}{x}\right) \leq 1$ को संतुष्ट करता है।

- (a) $\left(-\infty, -\frac{5}{2}\right] \cup (0, \infty)$
(b) $\left[\frac{5}{2}, \infty\right)$
(c) $(-\infty, -2) \cup (0, \infty)$
(d) None of these

18. If a, b, c are positive real numbers then

$$\frac{1}{\log_a bc+1} + \frac{1}{\log_b ca+1} + \frac{1}{\log_c ab+1} =$$

- (a) 0 (b) 1
(c) 2 (d) -1

19. If $\frac{\log x}{2a+3b-5c} = \frac{\log y}{2b+3c-5a} = \frac{\log z}{2c+3a-5b}$ then $xyz =$

- (a) 2 (b) 1
(c) 0 (d) -1

20. If $\frac{\log_2 a}{2} = \frac{\log_3 b}{3} = \frac{\log_4 c}{4}$ and $a^{1/2}b^{1/3}c^{1/4} = 24$, then

- (a) $a = 24$ (b) $b = 81$

- (c) $c = 64$ (d) $c = 256$

21. If $\frac{1}{\log_2 n} + \frac{1}{\log_3 n} + \frac{1}{\log_4 n} + \dots + \frac{1}{\log_{43} n} =$

- (a) 1 (b) $\log_{43!} n$
(c) $\log_n 43!$ (d) None of these

22. If $\log_4 5 = x$ and $\log_5 6 = y$, then $\log_3 2$ is equal to

- (a) $\frac{1}{2x+1}$ (b) $\frac{1}{2y+1}$
(c) $2xy+1$ (d) $\frac{1}{2xy-1}$

23. The value of $e^{\log_e x + \log_{\sqrt{e}} x + \log_{3\sqrt{e}} x + \dots + \log_{10\sqrt{e}} x}$ is

- (a) x^{10} (b) e
(c) x^{55} (d) None of these

24. If $\log_{0.04}(x-1) \geq \log_{0.02}(x-1)$, then x belongs to the interval

- (a) $(1, 2]$ (b) $(-\infty, 2]$
(c) $[2, x)$ (d) None of these

25. The number of solution of the equation $3 \log_3 |x| = \log_3 x^2$ is

समीकरण $3 \log_3 |x| = \log_3 x^2$ के कितने हल होंगे-

- (a) 0 (b) 1
(c) 2 (d) 3

Answer Key

1	D	11	B	21	C
2	B	12	D	22	D
3	B	13	C	23	C
4	C	14	A	24	C
5	C	15	C	25	C
6	C	16	B		
7	B	17	A		
8	A	18	B		
9	C	19	B		
10	D	20	D		