Chapter 01

Basic Maths and Logarithm

JEE-FLASHBACK

JEE MAINS QUESTION

Q.1 The number of elements in the set
$\{x \in R : (|x|-3)|x+4| = 6\}$ is equal to

[JEE Main – 2021]

(1) 3 (2) 2 (3) 4 (4) 1

Q.2 The value of $4+\cfrac{1}{5+\cfrac{1}{4+\cfrac{1}{5+\cfrac{1}{4+.....\infty}}}}$

[JEE Main-2021]

(1) $2+\frac{2}{5}\sqrt{30}$ (2) $2+\frac{4}{\sqrt{5}}\sqrt{30}$

(3) $4+\frac{4}{\sqrt{5}}\sqrt{30}$ (4) $5+\frac{2}{5}\sqrt{30}$

Q.3 The value of $3+\cfrac{1}{4+\cfrac{1}{3+\cfrac{1}{4+\cfrac{1}{3+...\infty}}}}$

[JEE Main – 2021]

(1) $1.5+\sqrt{3}$ (2) $2+\sqrt{3}$

(3) $3+2\sqrt{3}$ (4) $4+\sqrt{3}$

Q.4 If $f(x)$ and $g(x)$ are two polynomials such that the polynomial $P(x) = f(x^3) + xg(x^3)$ is divisible by $x^2 + x + 1$, then $P(1)$ is equal to _____.

[JEE Main –2021]

Q.5 If $a + b + c = 1$, $ab + bc + ca = 2$ and $abc = 3$, then the value of $a^4 + b^4 + c^4$ is equal to ____.

[JEE Main–2021]

Q.6 Let n be a non–negative integer. Then the number of divisors of the form "4n + 1" of the number $(10)^{10}.(11)^{11}.(13)^{13}$ is equal to ___.

[JEE Main – 2021]

Q.7 $25^{190} - 19^{190} - 8^{190} + 2^{190}$ is divisible by

[JEE Main – 2023]

(1) neither 14 nor 34 (2)14 but not by 34

(3) 34 but not by 14 (4) both 14 and 34

Q.8 Let a, b, c be the three distinct positive real numbers such that $(2a)^{\log_e a} = (bc)^{\log_e b}$ and $b^{\log_e 2} = a^{\log_e c}$ then 6a + 5bc is equal to_____

[JEE Main – 2023]

Q.9 The number of integral solution x of $\log_{\left(x+\frac{7}{2}\right)}\left(\frac{x-7}{2x-3}\right)^2 \geq 0$ is **[JEE Main – 2023]**

(1) 7 (2) 8
(3) 6 (4) 5

JEE ADVANCED QUESTION

Q.1 Let (x_0, y_0) be the solution of the following equations $(2x)^{\ell n2} = (3y)^{\ell n3}$ and $3^{\ell nx} = 2^{\ell ny}$. Then x_0 is **[IIT-JEE 2011, Paper-1]**

(1) $\frac{1}{6}$ (2) $\frac{1}{3}$ (3) $\frac{1}{2}$ (4) 6

Q.2 The value of $6+\log_{\frac{3}{2}}\left(\frac{1}{3\sqrt{2}}\sqrt{4-\frac{1}{3\sqrt{2}}\sqrt{4-\frac{1}{3\sqrt{2}}\sqrt{4-\frac{1}{3\sqrt{2}}}....}}\right)$ is **[IIT-JEE 2012, Paper-1]**

Q.3 If $3^x = 4^{x-1}$, then x =
[JEE (Advanced) 2013, Paper-2]

(1) $\frac{2\log_3 2}{2\log_3 2-1}$ (2) $\frac{2}{2-\log_2 3}$
(3) $\frac{1}{1-\log_4 3}$ (4) $\frac{2\log_2 3}{2\log_2 3-1}$

Q.4 The value of $((\log_2 9)^2)^{\frac{1}{\log_2(\log_2 9)}} \times (\sqrt{7})^{\frac{1}{\log_4 7}}$ is _____.
[JEE(Advanced) 2018, Paper-1]

ANSWER KEY

JEE-FLASHBACK

JEE MAINS QUESTIONS

Qus.	1	2	3	4	5	6	7	8	9
Ans.	2	1	1	0	13	924	3	8	3

JEE ADVANCED QUESTIONS

Qus.	1	2	3	4	5
Ans.	3	4	1,2,3	8	1