

JEE MAIN 29 JANUARY 2025 SHIFT 2

MATHEMATICS QUESTION PAPER WITH ANSWER KEY

Q.No.	Questions	Answers
1	If the letters of the word "KANPUR" are arranged in dictionary, then the 440th word is	PRKAUN
2	If 3^{107} is divided by 23, then remainder is	6
3	Let $a_{ij} = (\sqrt{2})^{i+j}$, $A = [a_{ij}]_{3 \times 3}$ If sum of third row of A^2 is $\alpha + \beta\sqrt{2}$, then $\alpha + \beta$ is	224
4	Let $f(x) = \int_0^x t(t^2 - 3t + 20) dt$, $x \in (1, 3)$ and range of $f(x)$ is (α, β) , then $\alpha + \beta$ is equal to	185/2
5	$\lim_{x \rightarrow 0} [\operatorname{cosec} x ((2\cos^2 x + 3\cos x)^{1/2} - (\cos^2 x + \sin x + 4)^{1/2})] = ?$	$-1/2\sqrt{5}$
6	Let the line L be $(x - 1)/1 = (y - 4)/3 = (z - 7)/5 = \lambda$ and foot of perpendicular from $(1, -2, -1)$ to L is (α, β, γ) , then find the value of $\alpha + \beta + \gamma$.	$-102/35$
7	If the exhaustive values of a for which the equation $2x^2 + (a - 5)x + 15 = 3a$ has no real roots is (α, β) , then $14(\alpha + \beta)$ is equal to	56
8	Area enclosed between the curves $ y = 1 - x^2$ and $x^2 + y^2 = 1$ is $(\pi - \alpha)$ sq. units, then 9α is	24
9	If $\log y = x \log (2/5)$, $x \in \mathbb{N} \cup \{0\}$. Then sum of all values of y equals to	5/3
10	There is an arithmetic progression $a_1, a_2, a_3, \dots, a_{2024}$ and $a_1 + (a_5 + a_{10} + a_{15} - a_{2020}) + a_{2024} = 2233$. Find the value of $a_1 + a_2 + a_3 + \dots + a_{2024}$.	11132
11	Two points $(4, 2)$ and $(0, 2)$ lie on the circle whose centre lies on $3x + 2y + 2 = 0$ then the length of the chord whose mid-point is $(1, 2)$, is	$2\sqrt{3}$