JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1

ACTUAL PAPER

Download Doubtnut Today

Ques No.	Question
1 - 6014882	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Find the equation of line through $(-4, 1, 3)$ & parallel to the plane $x+y+z=3$ while the line intersects another line whose eqution is $x+y-z=x+2y-3z+5$ (a) $\frac{x+4}{-3}=\frac{y-1}{-2}=\frac{z-3}{1}$ (b) $\frac{x+4}{1}=\frac{y-1}{2}=\frac{z-3}{-3}$ (c) $\frac{x+4}{-3}=\frac{y-1}{2}=\frac{z-3}{1}$ (d) Watch Free Video Solution on Doubtnut
2 - 6014883	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** From a well shuffled deck of cards, 2 cards are drawn with replacement. If x represent numbers of time ace coming, then the value of $P(x=1)+P(x=2)$ is (a) $\frac{25}{169}(b)$(24)/(169) (c) $\frac{49}{169}(d)$(23)/(169)` Watch Free Video Solution on Doubtnut
3 - 6005457	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Let $a_1, a_2, ..., a_{30}$ be an AP, $S=\sum_{i=1}^{30} a_i$ and $T=\sum_{i=1}^{15} a_{2i-1}$ If $a_5=27$ and $S-2T=75$ then a_{10} is equal to (a) 57 (b) 42 (c) 52 (4) 47 Watch Free Video Solution on Doubtnut
4 - 6014896	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER**

If $y(x)$ is solution of $x\frac{dy}{dx}+2y=x^2, y(1)=1$ then value of $y\left(\frac{1}{2}\right)=$ (a) $-\frac{49}{16}$ (b) $\frac{49}{16}$ (c) $\frac{45}{8}$ (d) $-\frac{45}{8}$

Watch Free Video Solution on Doubtnut

5 - 6014897

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

There si a parabola having axis as x-axis, vertex is at a distance of 2 unit from origin & focus is at $(4,0)$. Which of the following point does not lie on the parabola. (a) $(6,8)$ (b) $(5,2\sqrt{6})$ (c) $(8,4\sqrt{3})$ (d) $(4,-4)$

Watch Free Video Solution on Doubtnut

6 - 6014898

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A plane parallel to y-axis passing through line of intersection of planes $x+y+z=1$ & $2x+3y-z-4=0$ which of the point lie on the plane (a) $(3,2,1)$ (b) $(-3,0,1)$ (c) $(-3,1,1)$ (d) $(3,-1,1)$

Watch Free Video Solution on Doubtnut

7 - 6014899

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

if $\vec{A}=i-j, \vec{B}=i+j+k$ are two vectors and $\vec{C}$ is another vector such that $\vec{A}\times\vec{C}+\vec{B}=\vec{0}$ and $\vec{A}.\vec{C}=0$ then $\left|\vec{C}\right|^2=$ (a) 9 (b) 8 (c) $\frac{19}{2}$ (d) $\frac{17}{2}$

Watch Free Video Solution on Doubtnut

8 - 6014900

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

3 circles of radii $a, b, c(a<b<c)$ touch each other externally and have x-axis as a common tangent then

Watch Free Video Solution on Doubtnut

9 - 6014901

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $px + qx + r = 0$ represent a family fo staright lines such that $3p + 2q + 4r = 0$ then (a) All lines are parallel (b) All lines are incosistance (c) All lines are concurrent at $\left(\frac{3}{4}, \frac{1}{2}\right)$ (d) All lines are concurrent at $(3, 2)$

Watch Free Video Solution on Doubtnut

10 - 6014902

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The equation $x^2 + 2x + 2 = 0$ has root α and β . Then value of $\alpha^{15} + \beta^{15}$ is (a) 512 (b) 256 (c) -512 (d) -256

Watch Free Video Solution on Doubtnut

11 - 6014903

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Find sum of all possible value of θ in the interval $\left(-\frac{\pi}{2}, \pi\right)$ for which $\frac{3 + 2i\sin\theta}{1 - 2\sin i\theta}$ is purely imaginary (a) $\frac{\pi}{3}$ (b) (π) (c) $\frac{2\pi}{3}$ (d) $\frac{\pi}{2}$

Watch Free Video Solution on Doubtnut

12 - 6014904

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

There are 5 girls and 7 boyes and 2 girls is to be formed such that no two specific boys are in the same team. Number of way to do so (a) 400 (b) 250 (c) 200 (d) 300

Watch Free Video Solution on Doubtnut

13 - 6014905

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$\int_0^{\pi} |\cos x|^3 dx$ is equal to (a) $\frac{4}{3}$ (b) $\frac{2}{3}$ (c) 0 (d) $\frac{-8}{3}$

Watch Free Video Solution on Doubtnut

14 - 6014906

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $A = \begin{bmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$ Find the value of A^{-50} at $\theta = \frac{\pi}{2}$ (a) $\begin{bmatrix} -\frac{\sqrt{3}}{2} & -\frac{1}{2} \\ -\frac{1}{2} & \frac{\sqrt{3}}{2} \end{bmatrix}$ (b) $\begin{bmatrix} \frac{\sqrt{3}}{2} & \frac{1}{2} \\ \frac{-1}{2} & \frac{\sqrt{3}}{2} \end{bmatrix}$ (c) $\begin{bmatrix} -\frac{\sqrt{3}}{2} & \frac{1}{2} \\ \frac{1}{2} & \frac{\sqrt{3}}{2} \end{bmatrix}$ (d) $\begin{bmatrix} \frac{1}{2} & \frac{\sqrt{3}}{2} \\ \frac{\sqrt{3}}{2} & \frac{-1}{2} \end{bmatrix}$

Watch Free Video Solution on Doubtnut

15 - 6014907

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Find common tangent of the two curve $y^2 = 4x$ and $x^2 + y^2 - 6x = 0$ (a) $y = \frac{x}{3} + 3$ (b) $y = \left(\frac{x}{\sqrt{3}} - \sqrt{3}\right)$ (c) $y = \frac{x}{3} - 3$ (d) $y = \left(\frac{x}{\sqrt{3}} + \sqrt{3}\right)$

Watch Free Video Solution on Doubtnut

16 - 6014908

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Average height & variance of 5 students in a class is 150 and 18 respectively. A new student whose height is $156cm$ is added to the group. Find new variance. (a) 20 (b) 22 (c) 16 (d) 14

Watch Free Video Solution on Doubtnut

17 - 6014909

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Consider the curves $y = x^2 + 2$ and $y = 10 - x^2$. Let θ be the angle between both the curves at point of intersection, then find $|\tan\theta|$ (a) $\frac{8}{15}$ (b) $\frac{5}{17}$ (c) $\frac{3}{17}$ (d) $\frac{8}{17}$

Watch Free Video Solution on Doubtnut

18 - 6014910

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If eccentricity of the hyperbola $\frac{x^2}{\cos^2\theta} - \frac{y^2}{\sin^2\theta} = 1$ is move than 2 when $\theta \in \left(0, \frac{\pi}{2}\right)$. Find the possible values of length of latus rectum (a) $(3, \infty)$ (b) $1, 3/2)$ (c) $(2, 3)$ (d) $(-3, -2)$

Watch Free Video Solution on Doubtnut

19 - 6014911

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $f(x)=\frac{1}{x}, f_2(x)=1-x, f_3(x)=\frac{1}{1-x}$ then find $J(x)$ such that $f_2oJof_1(x)=f_3(x)$ (a) $f_1(x)$ (b) $\frac{1}{x}f_3(x)$ (c) $f_3(x)$ (d) $f_2(x)$

Watch Free Video Solution on Doubtnut

20 - 6014912

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

if $\cos^{-1}\left(\frac{2}{3x}\right)+\cos^{-1}\left(\frac{3}{4x}\right)=\frac{\pi}{2}, x>\frac{3}{4}$ then $x=$ (a) $\frac{\sqrt{145}}{11}$ (b) $\frac{\sqrt{145}}{12}$ (c) $\frac{\sqrt{146}}{10}$ (d) $\frac{\sqrt{146}}{11}$

Watch Free Video Solution on Doubtnut

21 - 6005569

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If the area bouded by the curve $y=x^2-1$ tangent to it at $(2,3)$ and y-axis is (a) $\frac{2}{3}$ (b) $\frac{4}{3}$ (c) $\frac{8}{3}$ (d) 1

Watch Free Video Solution on Doubtnut

22 - 6014913

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$\left\{\frac{2^{403}}{15}\right\}=\frac{k}{15}$ then find k. (a) 2 (b) 8 (c) 1 (d) 4

Watch Free Video Solution on Doubtnut

23 - 6014914

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $(A+\oplus B)\wedge(\sim A\Theta B)=A\wedge B$ what should be proper symbol in place of $\oplus$ and Θ to hold the equation (a) $\wedge$ and $\vee$ (b) $\wedge$ and $\wedge$ (c) $\vee$ and $\vee$ (d) $\vee$ and $\wedge$

Watch Free Video Solution on Doubtnut

24 - 6014915

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If slant height of a right circular cone is $3cm$ then the maximum volume of cone is (a) $2\sqrt{3}\pi cm^3$ (b) $4\sqrt{3}\pi cm^3$ (c) $\left(2+\sqrt{3}\right)\pi cm^3$ (d) $\left(2-\sqrt{3}\right)\pi cm^3$

Watch Free Video Solution on Doubtnut

25 - 6014916

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$f(x)=\{5; x\leq 1, a+bx; 1<x<3, b+5x; 3\leq x<5, 30x\geq 5$ then

Watch Free Video Solution on Doubtnut

26 - 6014917

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Consider the system of equation $x+y+z=1, 2x+3y+2z=1, 2x+3y+\left(a^2-1\right)z=a+1$ then (a) system has a unique solution for $|a|=\sqrt{3}$ (b) system is inconsistence for $|a|=\sqrt{3}$ (c) system is inconsistence for $a=4$ (d) system is inconsistence for $a=3$

Watch Free Video Solution on Doubtnut

27 - 6014918

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$\lim_{y\to\infty}\frac{\sqrt{1+\sqrt{1+y^4}}-\sqrt{2}}{y^4}=$ (a) $\frac{1}{4\sqrt{2}}$ (b) $\frac{1}{2\sqrt{2}}$ (c) $\frac{1}{2\sqrt{2}\left(1+\sqrt{2}\right)}$ (d) does not exist

Watch Free Video Solution on Doubtnut

28 - 6014919

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

a, b, c are in G.P. and $a+b+c=xb$, x can not be (a) 2 (b) -2 (c) 3 (d) 4

Watch Free Video Solution on Doubtnut

29 - 6014920

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The value of $3(\cos\theta-\sin\theta)^4+6(\sin\theta+\cos\theta)^2+4\sin^6\theta$ is where $\theta\in\left(\frac{\pi}{4},\frac{\pi}{2}\right)$ (a) $13-4\cos^4\theta$ (b) $13-4\cos^6\theta$ (c) $13-4\cos^6\theta+2\sin^4\theta\cos^2\theta$ (d) $13-4\cos^4\theta+2\sin^4\theta\cos^2\theta$

Watch Free Video Solution on Doubtnut

30 - 6014921

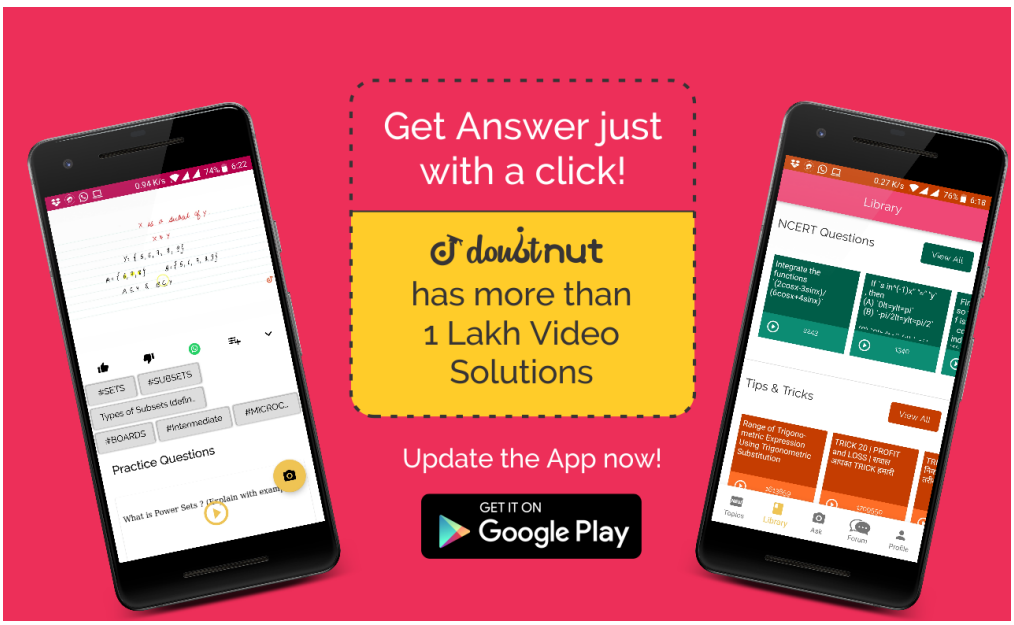
JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

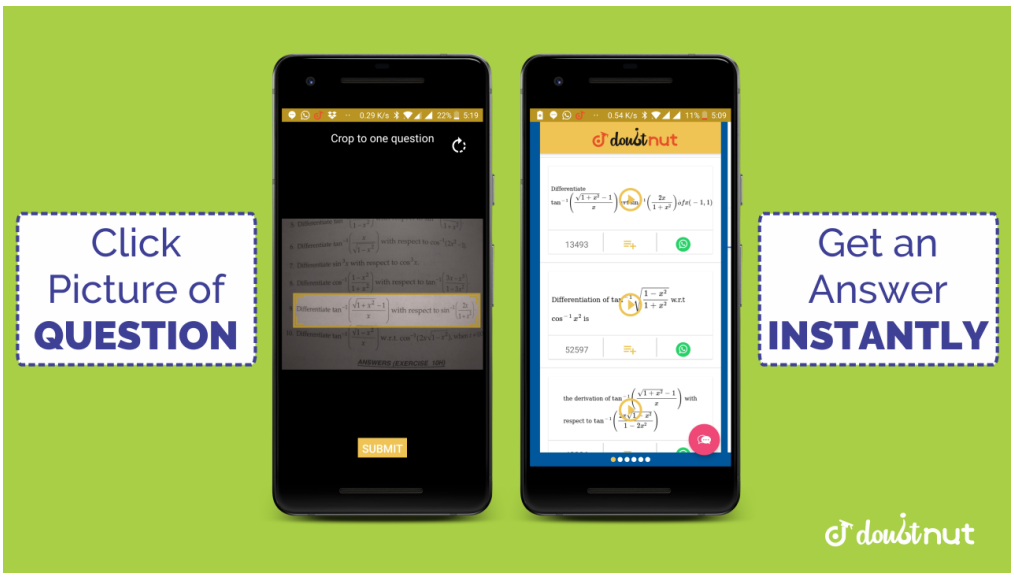
If $x^2\neq n\pi-1, n\in N$. Then, the value of $\int x\sqrt{\frac{2\sin(x^2+1)-\sin 2(x^2+1)}{2\sin(x^2+1)+\sin 2(x^2+1)}}dx$ is equal to:

Watch Free Video Solution on Doubtnut

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2

ACTUAL PAPER

Ques No.	Question
1 - 6015001	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Find sum of first 15 term of series $1+6+\frac{9(1^2+2^2+3^2)}{7}+\frac{12(1^2+2^2+3^2+4^2)}{9}+.....$ (1) 7620 (2) 7280 (3) 7820 (4) 7067 Watch Free Video Solution on Doubtnut
2 - 6015002	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Find the value of $\lim_{x\to 0}\frac{x(([x]+\lvert x\rvert)\sin[x])}{\lvert x\rvert}$. (a) $\sin 1$ (b) $\sin 1$ (c) 0 (d) 1 Watch Free Video Solution on Doubtnut
3 - 6015003	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Let $y=y(x)$ is a solution of $\frac{dy}{dx}=f(x)$ where $f(xy)=f(x)f(y)\forall x,y\in R$ and $f(0)\neq 0$ and $y(0)=\frac{1}{2}$, then $y\left(\frac{1}{4}\right)+y\left(\frac{3}{4}\right)$ is equal to (1)1 (2)2 (3) 3 (4) 4 Watch Free Video Solution on Doubtnut
	
4 - 6015004	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If $x=\sin^{-1}(\sin 10)$ and $y=\cos^{-1}(\cos 10)$, then the value of $(y-x)$ is (a) π (b) 7π (c) 0 (d) 10

	Watch Free Video Solution on Doubtnut
5 - 6015005	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Find number of solution of equation $\sin x - \sin 2x + \sin 3x = 0$ in $0 \leq x \leq \frac{\pi}{2}$ (a) 2 (b) 3 (c) 4 (d) 5 Watch Free Video Solution on Doubtnut
6 - 6015006	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Let Z_0 is the root of equation $x^2 + x + 1 = 0$ and $Z = 3 + 6i(Z_0)^{81} - 3i(Z_0)^{93}$ Then arg (Z) is equal to (a) $\frac{\pi}{4}$ (b) $\frac{\pi}{3}$ (c) π (d) $\frac{\pi}{6}$ Watch Free Video Solution on Doubtnut
7 - 6015007	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Find area enclosed by curve $0 \leq y \leq x\|x\| + 1$ between $-1 \leq x \leq 1$ (a) 2 (b) $\frac{4}{3}$ (c) $\frac{1}{3}$ (d) 3 Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
8 - 6005798	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If the system of linear equations $x - 4y + 7z = g$, $3y - 5z = h$, $-2x + 5y - 9z = k$ is consistent, then (a) $g + 2h + k = 0$ (b) $g + h + 2k = 0$ (c) $2g + h + k = 0$ (d) $g + h + k = 0$ Watch Free Video Solution on Doubtnut
9 - 6015008	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** The coefficient of t^4 in $\left(\frac{1 - t^6}{1 - t}\right)^3$ (a) 18 (b) 12 (c) 9 (d) 15 Watch Free Video Solution on Doubtnut
10 - 6015009	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER**

Let real and distinct roots of equation $x^2 - mx + 4 = 0$ lies in $[1, 5]$ then range of m is (a) $(3, 4)$ (b) $(4, 5)$ (c) $(-5, -4)$ (d) $(-3, 4)$

Watch Free Video Solution on Doubtnut

11 - 6015010

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If S is a set of triangles whose one vertex is origin and other two vertices are integral coordinates and lies on coordinate axis of area 50 square units, then number of elements in set S is equal to (a) 9 (b) 18 (c) 36 (d) 40

Watch Free Video Solution on Doubtnut

12 - 6015011

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let a, b, c are 7th, 11th and 13th terms of constant $A.P$ if a,b,c are also is G.P then find $\frac{a}{c}$ (a) 1 (b) 2 (c) 3 (d) 4

Watch Free Video Solution on Doubtnut

13 - 6005942

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The logical statement $[\sim(\sim p \vee q) \vee (p \wedge r)] \wedge (\sim q \wedge r)$ is equivalent to (a) $(\sim p \wedge \sim q) \wedge r$ (b) $\sim p \vee r$ (c) $(p \wedge r) \wedge \sim q$ (d) $(p \wedge \sim q) \vee r$

Watch Free Video Solution on Doubtnut

14 - 6006056

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

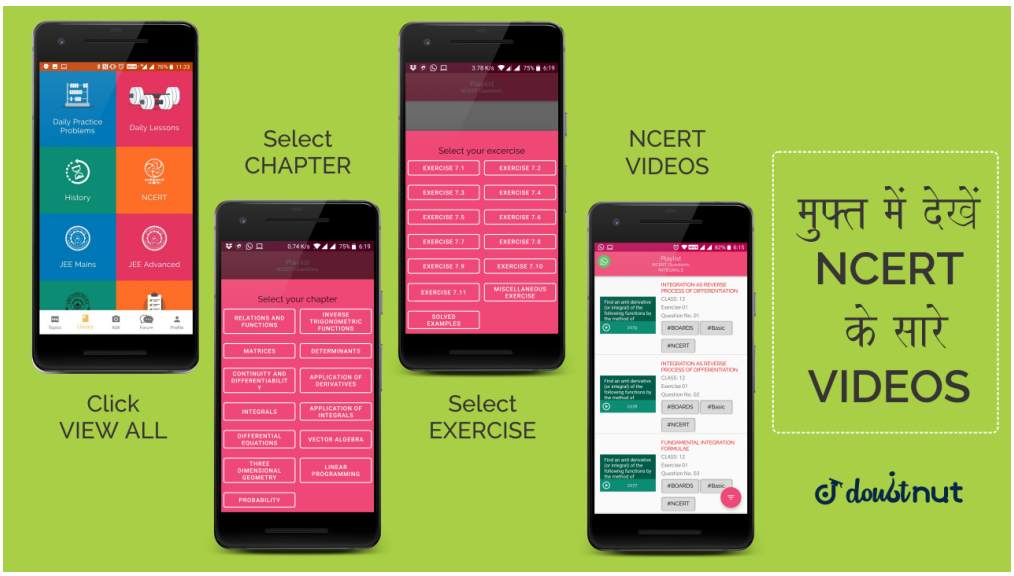
Equation of the plane containing the straight line $\frac{x}{2} = \frac{y}{3} = \frac{z}{4}$ and perpendicular to the plane containing the straight lines $\frac{x}{2} = \frac{y}{4} = \frac{z}{2}$ and $\frac{x}{4} = \frac{y}{2} = \frac{z}{3}$ is

Watch Free Video Solution on Doubtnut

15 - 6015012

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $\sum_{i=1}^{n} (x_i + 1)^2 = 9n$ and $\sum_{i=1}^{n} (x_i - 1)^2 = 5n$, then standard deviation of these 'n' observations

	(x_1) is: (1) $2\sqrt{3}$ (2) $\sqrt{3}$ (3) $\sqrt{5}$ (4) $3\sqrt{2}$ Watch Free Video Solution on Doubtnut
	
16 - 6015013	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Matrix $\begin{bmatrix} e^t & e^{-t}(\sin t - 2\cos t) & e^{-t}(-2\sin t - \cos t) \\ e^t & -e^{-t}(2\sin t + \cos t) & e^{-t}(\sin t - 2\cos t) \\ e^t & e^{-t}\cos t & e^{-t}\sin t \end{bmatrix}$ is invertible. (1) only id $t = \frac{\pi}{2}$ (2) only $y = \pi$ (3) $t \in R$ (4) $t \notin R$ Watch Free Video Solution on Doubtnut
17 - 6015014	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** $\int \frac{5x^8 + 7x^6}{x^2 + 1 + 2x^7} dx$ is equal to (a) $\frac{x}{x^2 + 1 + 2x^7} + C$ (b) $\frac{x^7}{x^2 + 1 + 2x^7} + C$ (c) $\frac{x^6}{x^2 + 1 + 2x^7} + C$ (d) $\frac{x^2}{x^2 + 1 + 2x^7} + C$ Watch Free Video Solution on Doubtnut
18 - 6015015	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If $\lvert f(x) - f(y) \rvert \leq 2\lvert x - y \rvert^{\frac{3}{2}}$ $\forall x, y \in R$ and $f(0) = 1$ then value of $\int_0^1 f^2(x)dx$ is equal to (a) 1 (b) 2 (c) $\sqrt{2}$ (d) 4 Watch Free Video Solution on Doubtnut
19 - 6015016	**JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If $x = 3\tan t$ and $y = 3\sec t$ then find $\frac{d^2y}{dx^2}$ at $x = \frac{\pi}{4}$ (a) 3 (b) $\frac{1}{6\sqrt{2}}$ (c) 1 (d) $\frac{1}{6}$ Watch Free Video Solution on Doubtnut

20 - 6015017

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Number of natural number\'s less than 7000 using digit $0, 1, 3, 7, 9$ (repetition allowed) is- (a) 275 (b) 275 (c) 274 (d) 374

Watch Free Video Solution on Doubtnut

21 - 6015018

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If the circles $x^2 + y^2 - 16x - 20y + 164 = r^2$ and $(x-4)^2 + (y-7)^2 = 36$ intersect at two points then (a) $1 < r < 11$ (b) $r = 11$ (c) $r > 11$ (d) $0 < r < 1$

Watch Free Video Solution on Doubtnut

22 - 6015019

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Find the eccetricity of hyperbola through $(4, 2)$ whose centre is $(0, 0)$ length of transverse axis is 4 and transverse axis along x-axis. (1) 2 (2) $\sqrt{3}$ (3) $\frac{\sqrt{3}}{2}$ (4) $\frac{2}{\sqrt{3}}$

Watch Free Video Solution on Doubtnut

23 - 6015020

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $A(4, -4)$ and $B(9, 6)$ lies on $y^2 = 4x$ and a point C on arc AOB(O=origin) such that the area of $\triangle ACB$ is maximum then point c is (1) $\left(\frac{1}{4}, 1\right)$ (2) $\left(1, \frac{1}{4}\right)$ (3) $\left(1, \frac{1}{2}\right)$ (4) $\left(\frac{1}{2}, 1\right)$

Watch Free Video Solution on Doubtnut

24 - 6015021

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let equation of two sides of a triangle are $4x+5y=20$ and $3x-2y+6=0$ If orthocentre of triangle is $(1,1)$ then the equation of third side of triangle is (a) $y+10=\frac{-13}{61}\left(x+\frac{35}{2}\right)$ (2) $y+10=\frac{-13}{61}\left(x-\frac{35}{2}\right)$ (3) $y+10=\frac{13}{61}\left(x-\frac{35}{2}\right)$ (4) $y-10=\frac{13}{61}\left(x-\frac{35}{2}\right)$

Watch Free Video Solution on Doubtnut

25 - 6015022

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

An urn contains 5 red and 2 green balls, one ball is chosen from urn. If it is red then a green ball is put back into Box, and if it green then a red ball is put in to box (previous ball was not put in that box). Then a second ball is drawn the probebility that it is red ball is (a) $\frac{32}{49}$ (b) $\frac{17}{49}$ (c) $\frac{15}{49}$ (d) $\frac{36}{49}$

Watch Free Video Solution on Doubtnut

26 - 6015023

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Two lines in 3-D are $x=ay+b$,$z=cy+d$ and $x=a'z+b'$,$y=c'x+d'$ are perpendicular to each other then which of the following condition is true? (a) $aa'+c+c'=0$ (b) $cc'+a+a'=0$ (c) $aa'+cc'=0$ (d) $aa'+cc'+1=0$

Watch Free Video Solution on Doubtnut

27 - 6015024

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

let $\vec{a}=\hat{i}_{+}\hat{j}+\sqrt{2}\hat{k}$ $\vec{b}=b_1\hat{i}+b_2\hat{J}+\sqrt{2}\hat{k}$ $\vec{c}=5\hat{i}+\hat{j}+\sqrt{2}\hat{k}$ & $\left(\vec{a}+\vec{b}\right)$ is perpendicular to $\vec{c}$ and projection vector of $\vec{b}$ on $\vec{a}$ is $\vec{a}$ then find $\left|\vec{b}\right|$ (a) 6 (b) $\sqrt{22}$ (c) $\sqrt{32}$ (d) 11

Watch Free Video Solution on Doubtnut

28 - 6006132

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The number of all possible positive integral values of α for which the roots of the quadratic equation $6x^2 - 11x + \alpha = 0$ are rational numbers is : (a) 3 (b) 2 (c) 4 (d) 5

Watch Free Video Solution on Doubtnut

29 - 6015025

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let $A = \{x : x\varepsilon R - \}f$ is defined from $A \to R$ as $f(x) = \dfrac{2x}{x-1}$ then $f(x)$ is (a) Surjective but nor injective (b) injective but nor surjective (c) neither injective surjective (d) injective

Watch Free Video Solution on Doubtnut

30 - 6015026

JEE MAINS 09 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

$\displaystyle\int_0^{\frac{\pi}{3}} \frac{\tan x}{\sqrt{2k \sec x}} dx = 1 - \frac{1}{\sqrt{2}}$, then value of k is (a) 2 (b) 1 (c) $\dfrac{1}{2}$ (d) $\dfrac{1}{4}$

Watch Free Video Solution on Doubtnut

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1

ACTUAL PAPER

Ques No.	Question
1 - 6014922	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Sides of $\triangle ABC, AB = 7cm, BC = 5cm, CA = 6cm$. A pole is stand at mid point of side AC. Angle of elevation of pole from vertex B is 30°, find height of pole (a) $\frac{\sqrt{7}}{\sqrt{3}}$ (b) $\frac{2\sqrt{7}}{\sqrt{3}}$ (c) $2\sqrt{21}$ (d) $2\sqrt{7}$ Watch Free Video Solution on Doubtnut
2 - 6014923	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** $5, 5r, 5r^2$are sides of a triangle. Which value of r cannot be possible (a) $3/2$ (b) $5/4$ (c) $3/4$ (d) $7/4$ Watch Free Video Solution on Doubtnut
3 - 6014924	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Consider a two digit number which when divided by 7 leaves the remainder 2 or 5 then find sum of all possible number (a) 1356 (b) 1256 (c) 1456 (d) 1265 Watch Free Video Solution on Doubtnut
4 - 6014925	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** A line $4x + 3y = 24$ cut the x-axis at point A and cut the y-axis at point B then incentre of triangle OAB is (a) $(4, 4)$ (b) $(4, 3)$ (c) $(3, 4)$ (d) $(2, 2)$ Watch Free Video Solution on Doubtnut

5 - 6014926

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $I = \int \left(\frac{(\sin x)^n - \sin x^{\frac{1}{n}}}{(\sin x)^{n+1} \cos x} \right) dx$ is eqaul to (a) $\left(\frac{n}{n^2 - 1} \right) \left(1 - \frac{1}{\sin x^{n-1}} \right)^{\frac{1}{n}+1} + c$ (b) $\left(\frac{n}{n^2 + 1} \right) \left(1 - \frac{1}{\sin x^{n-1}} \right)^{\frac{1}{n}+1} + c$ (c) $\left(\frac{n}{n^2 + 1} \right) \left(1 - \frac{1}{\sin x^{n-1}} \right)^{\frac{1}{n}} + c$ (d) $\left(\frac{n}{n^2 - 1} \right) \left(1 - \frac{1}{\sin x} \right)^{\frac{1}{n}+1} + c$

Watch Free Video Solution on Doubtnut

6 - 6014927

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A plane passes through point $(4, -1, 3)$ and is parabola the in $\frac{x+2}{3} = \frac{y-2}{-1} = \frac{z+2}{2}$ and $\frac{x-1}{1} = \frac{y-2}{2} = \frac{z-3}{3}$ the n which of the following ponts lies on place (a) (1,1,1) (b)(1,1,-1) (c)(1,0,-1) (d)(0,1,1)`

Watch Free Video Solution on Doubtnut

7 - 6006423

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $\vec{a} = 2\hat{i} + \lambda_1 \hat{j} + 3\hat{k}$, $\vec{b} = 4\hat{i} + (3 - \lambda_2)\hat{j} + 6\hat{k}$ and $\vec{c} = 3\hat{i} + 6\hat{j} + (\lambda_3 - 1)\hat{k}$ be three vectors such that $\vec{b} = 2\vec{a}$ and $\vec{a}$ is perpendicular to $\vec{c}$ then a possible value of $(\lambda_1, \lambda_2, \lambda_3)$ is : (a) $(1, 3, 1)$ (b) $\left(-\frac{1}{2}, 4, 0 \right)$ (c) $(1, 5, 1)$ (d) $\left(\frac{1}{2}, 4, -2 \right)$

Watch Free Video Solution on Doubtnut

8 - 6014928

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $\sin^{22} \theta + \cos^{42} \theta = \frac{3}{4}$ where $\theta \in \left[0, \frac{\pi}{2} \right]$, then find the sum of all values of theta (a) π (b) $-\pi$ (c) $\frac{5\pi}{4}$ (d) $\frac{\pi}{2}$

Watch Free Video Solution on Doubtnut

9 - 6014929

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$\lim_{x \to 1^+} \frac{(1-|x|-\sin|1-x|)\left(\frac{\sin \pi}{2}[1-x]\right)}{(1-|x|).([1-x])}$, where $[.]$ is greatest integer function is equal top (a) 1 (b) 2 (c) 3 (d) 4

Watch Free Video Solution on Doubtnut

10 - 6014930

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let equations are $x+y+z=1, x+3y+5z=\beta, 3x+4y+\alpha z=9$ find $(\alpha-\beta)$ for which this system has infinite solution (a) 18 (b) 13 (c) 5 (d) 8

Watch Free Video Solution on Doubtnut

11 - 6014931

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $f(x)=x^3+x^2f(1)+xf''(2)+f'''(3)$. Then $f(2)$ is (a) -2 (b) 1 (c) 30 (d) 2

Watch Free Video Solution on Doubtnut

12 - 6014932

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let the five observations are $1, 3, 8, x, y$ and their mean is 5 and variance is 9.2 find the value of $\frac{x}{y}$ (a) $9:4$ (b) $6:7$ (c) $5:8$ (d) none

Watch Free Video Solution on Doubtnut

13 - 6014933

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Consider $p(m)=m^2-m+41$ (a) $P(3)$ is prime , is true and $P(5)$ is prime, is true (b) $P(3)$ is prime , is true and $P(5)$ is prime, is false (c) $P(3)$ is prime , is false and $P(5)$ is prime, is true (d) $P(3)$ is prime , is false and $P(5)$ is prime, is false

Watch Free Video Solution on Doubtnut

14 - 6006642

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $d \in R$ and $A = \begin{pmatrix} -2 & 4+d & \sin\theta - 2 \\ 1 & \sin\theta + 2 & d \\ 5 & 2\sin\theta - d & (-\sin\theta) + 2 + 2d \end{pmatrix}$ where $\theta \in [0, \pi]$. If the minimum value of $\det(A)$ is 8, then the value of d is (a) -7 (b) -5 (c) $2(\sqrt{2}+1)$ (d) $2(\sqrt{2}+2)$

Watch Free Video Solution on Doubtnut

15 - 6014934

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$\sum_{i=1}^{20} \frac{.^{20}C_{i-1}}{.^{20}C_i + .^{20}C_{i-1}} = \frac{k}{21}$ then find the value of k. (a) 400 (b) 100 (c) 50 (d) 200

Watch Free Video Solution on Doubtnut

16 - 6014935

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $I = \int_a^b (x^4 - 2x^2)dx$ for (a, b) which given integration is minimum $(b > 0)$ (a) $(\sqrt{2}, -\sqrt{2})$ (b) $(0, \sqrt{2})$ (c) $(-\sqrt{2}, \sqrt{2})$ (d) $(\sqrt{2}, 0)$

Watch Free Video Solution on Doubtnut

17 - 6014936

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $y^2 = 4b(x-c)$ and $y^2 = 8ax$ having common normal then (a, b, c) is (a) $\left(\frac{1}{2}, 2, 0\right)$ (b) $(1, 1, 3)$ (c) $(1, 1, 1)$ (d) $(1, 3, 2)$

Watch Free Video Solution on Doubtnut

18 - 6014937

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If the third term in expansion of $\left(1 + x^{\log_2 x}\right)^5$ is 2560 then x is equal to (a) $2\sqrt{2}$ (b) $\frac{1}{8}$ (c) $\frac{1}{4}$ (d) $4\sqrt{2}$

Watch Free Video Solution on Doubtnut

19 - 6014938

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Minimum distance of a point $\left(\frac{3}{2}, 0\right)$ from the curve $y = \sqrt{x}$ is (a) $\frac{\sqrt{5}}{2}$ (b) $\frac{5}{4}$ (c) $\sqrt{5}$ (d) $\frac{5}{2}$

Watch Free Video Solution on Doubtnut

20 - 6014939

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $y(x)$ be the solution of the differential equation $\frac{dy}{dx} + \frac{3y}{\cos^2 x} = \frac{1}{\cos^2 x}$ and $y\left(\frac{\pi}{4}\right) = \frac{4}{3}$ then vaue of $y\left(-\frac{\pi}{4}\right)$ is equal to (a) $-\frac{4}{3}$ (b) $\frac{1}{3}$ (c) $e^6 + \frac{1}{3}$ (d) 3

Watch Free Video Solution on Doubtnut

21 - 6014940

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The radius of the circle which touches circle $(x+2)^2 + (y-3)^2 = 25$ at point $(1, -1)$ and passes through $(4, 0)$ is (a) 4 (b) 5 (c) 3 (d) 8

Watch Free Video Solution on Doubtnut

22 - 6014941

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$f(x) = \begin{cases} \max\left(|x|, x^2\right) & |x| \le 2 \\ 8 - 2|x| & 2 < |x| \le 4 \end{cases}$ is (a) discontiuous at $x = 1$ (b) discontinous at $x = 2$ (c) non differentiable at $x = 2$ (d) discontinuous at $x = -1$

Watch Free Video Solution on Doubtnut

23 - 6014942

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $2|z_1| = 3|z_2|$ and $\frac{2}{3}\frac{z_1}{z_2} + \frac{3}{2}\frac{z_2}{z_1} = z$ then (a) real part of z is 0 (b) imaginary part at z is 0 (c) $|z| = \frac{\sqrt{5}}{2}$ (d) $|z| = \frac{\sqrt{17}}{2\sqrt{2}}$

Watch Free Video Solution on Doubtnut

24 - 6006748

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If the area enclosed between the curves $y = kx^2$ and $x = ky^2$, where $k > 0$, is 1 square unit. Then k is: (a) $\frac{1}{\sqrt{3}}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{2}{\sqrt{3}}$ (d) $\sqrt{3}$

Watch Free Video Solution on Doubtnut

25 - 6014943

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let the quadratic equation $(c-5)x^2 - 2cx + c - 4 = 0$ has one root in $(0, 2)$ and other root in $(2, 3)$ then find the number of intergral values of c in solution set (a) 18 (b) 12 (c) 11 (d) 10

Watch Free Video Solution on Doubtnut

26 - 6006854

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A point P moves on line $2x - 3y + 4 = 0$ If $Q(1, 4)$ and $R(3, -2)$ are fixed points, then the locus of the centroid of $\triangle PQR$ is a line: (a) with slope $\frac{3}{2}$ (b) parallel to y-axis (c) with slope $\frac{2}{3}$ (d) parallel to x-axis

Watch Free Video Solution on Doubtnut

27 - 6014944

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A coin is tossed if head turns up then pair of dice is thrown and sum of numbers is noted. If tail turns up then a card numbered from 1 to 9 is drawn and number is noted, then find the probability that number is $7 \text{ or } 8$. (a) $\frac{13}{36}$ (b) $\frac{15}{72}$ (c) $\frac{19}{72}$ (d) $\frac{11}{36}$

Watch Free Video Solution on Doubtnut

28 - 6007025

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let A be a point on the line $\vec{r} = (1-3\mu)\hat{i} + (\mu-1)\hat{j} + (2+5\mu)\hat{k}$ and $B(3,2,6)$ be a point in the space. Then the value of μ for which the vector $\overrightarrow{AB}$ is parallel to the plane $x-4y+3z=1$ is: (a) $\frac{1}{8}$ (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $-\frac{1}{4}$

Watch Free Video Solution on Doubtnut

29 - 6014945

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The equation of tangent to hyperbola $4x^2-5y^2=20$ which is parallel to $x-y=2$ is (a) $x-y+3=0$ (b) $x-y+1=0$ (c) $x-y=0$ (d) $x-y-3=0$

Watch Free Video Solution on Doubtnut

30 - 6007117

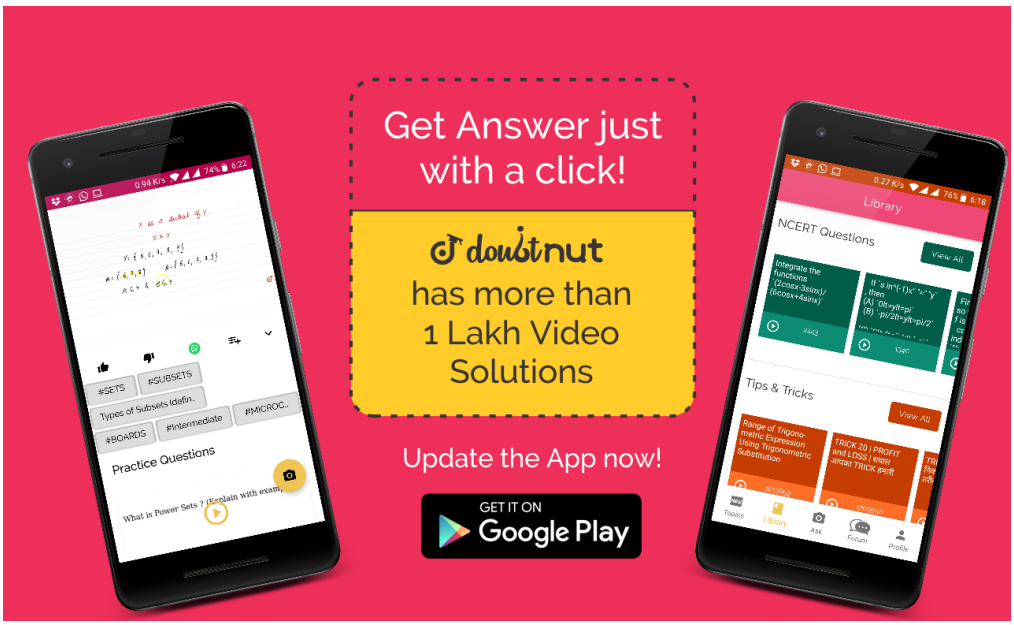
JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

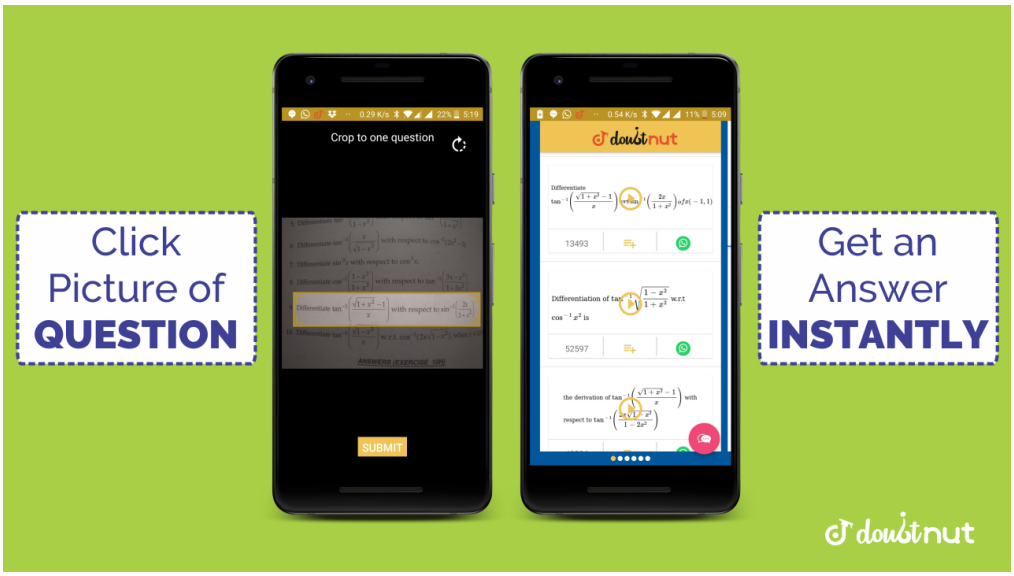
In a class 140 students numbered 1 to 140, all even numbered students opted Mathematics course, those whose number is divisible by 3 opted Physics course and those whose number is divisible by 5 opted Chemistry course. Then the number of students who did not opt for any of the three courses is (a) 38 (b) 1 (c)42 (d) 102

Watch Free Video Solution on Doubtnut

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2

ACTUAL PAPER

Ques No.	Question
1 - 6015027	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** The value of λ for which the sum of squares of roots of the equation $x^2+(3-\lambda)x+2=\lambda$ is minimum, then λ is equal to (a) 2 (b) -1 (c) -3 (d) -2 Watch Free Video Solution on Doubtnut
2 - 6015028	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** The value of $\cos\left(\frac{\pi}{2^2}\right).\cos\left(\frac{\pi}{2^3}\right).\cos\left(\frac{\pi}{2^4}\right).....\cos\left(\frac{\pi}{2^{10}}\right).\sin\left(\frac{\pi}{2^{10}}\right)$ is: (A) $\frac{1}{512}$ (B) $\frac{1}{1024}$ (C) $\frac{1}{256}$ (D) $\frac{1}{2}$ Watch Free Video Solution on Doubtnut
3 - 6015029	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** In curve which satisfies the differential equation $(x^2-y^2)dx+2xy\,dy=0$ passes through $(1,1)$ then curve is (a) a circle with centre on x-axis (b) a circle with centre on y-axis (c) a hyperbola with transverse axis as x-axis (d) an ellipse with major axis as y-axis Watch Free Video Solution on Doubtnut
	
4 - 6015030	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Let $f:(-1,1)\to\mathbb{R}$ be defined as $f(x)=\max\left(-\lvert x\rvert,-\sqrt{1-x^2}\right)$, then number of points where it is non-differentiable are equal to (a) 1 (b) 2 (c) 3 (d) 4

	Watch Free Video Solution on Doubtnut
5 - 6015031	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If coefficient of x^2 is expansion of $x^2\left(\sqrt{x}+\frac{\lambda}{x^2}\right)^{10}$ is 720, then λ can be equal to (a) 8 (b) 4 (c) 12 (d) 2 Watch Free Video Solution on Doubtnut
6 - 6015032	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Tangent at $(1, e)$ on the curve $y = x\,e^{x^2}$, also passes through the point (a) $\left(\frac{4}{3}, 2e\right)$ (b) $\left(\frac{5}{3}, e\right)$ (c) $\left(\frac{4}{3}, 3e\right)$ (d) $\left(\frac{3}{4}, 3e\right)$ Watch Free Video Solution on Doubtnut
7 - 6015033	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If $f: N \rightarrow N$ is given by $f(x) = \begin{cases} \frac{x+1}{2} & \text{if } x \text{ is odd} \\ \frac{x}{2} & \text{if } x \text{ is even} \end{cases}$ and $g: N \rightarrow N isgivenby$g(x)=x-(-1)^x , $then$f(g(x))` is (a) one one and onto (b) may one and onto (c) one one and not onto (d) neither one-one onto Watch Free Video Solution on Doubtnut
	
8 - 6015034	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** The number of possible value of θ lies in $(0, \pi)$, such that system of equation $x + 3y + 7z = 0,\ -x + 4y + 7z = 0, x\sin 3\theta + y\cos 2\theta + 2z = 0$ has non trivial solution is/are equal to (a) 2 (b) 3 (c) 5 (d) 4 Watch Free Video Solution on Doubtnut
9 - 6015035	**JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER**

Let $\vec{a}$ and $\vec{b}$ are non collinear vectors. If vectors $\vec{\alpha} = (\lambda - 2)\vec{a} + \vec{b}$ and $\vec{\beta} = (4\lambda - 2)\vec{a} + 3\vec{b}$ are collinear, then λ is equal to (a) -4 (b) 4 (c) 2 (d) -2

Watch Free Video Solution on Doubtnut

10 - 6015036

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Two sides of a parallelogram are $x + y = 3$ and $y - x = 3$. If the diagonals meet at $(2, 4)$ then which of the following can be one of the vertex of parallelogram. (a) (3,6) (b) (0,0) (c) $(1, -2)$ (d) $(2, 3)$

Watch Free Video Solution on Doubtnut

11 - 6015037

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $\int_0^x f(t)dt = x^2 + \int_x^1 t^2 f(t)dt$, then $f\left(\frac{1}{2}\right)$ is equal to (a) $\frac{24}{25}$ (b) $\frac{4}{25}$ (c) $\frac{4}{5}$ (d) $\frac{2}{5}$

Watch Free Video Solution on Doubtnut

12 - 6015038

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $z = \left(\frac{\sqrt{3}}{2} + \frac{1}{2}i\right)^5 + \left(\frac{\sqrt{3}}{2} - \frac{i}{2}\right)^5$, then (a) $im(z) = 0$ (b) $Re(z) > 0, Im(z) > 0$ (c) $Re(z) > 0, Im(z) < 0$ (d) $Re(z) = 3$

Watch Free Video Solution on Doubtnut

13 - 6015039

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The probability that a shooter hits a target is $\frac{1}{3}$. The minimum number of trials such that probability hitting the target atleast once is greater than $\frac{5}{6}$ is equal to (a) 4 (b) 5 (c) 6 (d) 7

Watch Free Video Solution on Doubtnut

14 - 6015040

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $\int x^5 e^{-4x^3} dx = \frac{1}{48} e^{-4x^3}(f(x)) + c$, where c is constant of intergration then $f(x)$ equals to (a) $-4x^3 - 1$ (b) $-1 - 2x^3$ (c) $4x^3 + 1$ (d) $1 - 2x^3$

Watch Free Video Solution on Doubtnut

15 - 6015041

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If area of an equilateral triangle inscribed in the circle $x^2 + y^2 + 10x + 12y + c = 0$ is $27\sqrt{3}$, then the value of c is (a) 25 (b) -25 (c) 36 (d) -36

Watch Free Video Solution on Doubtnut

16 - 6015042

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Given three statements P: 5 is a prime number, Q : 7 is a factor of 192, R : The LCM of 5 & 7 is 35 Then which of the following statements are true (a) $P \vee (\sim Q \wedge R)$ (b) $\sim P \wedge (\sim Q \wedge R)$ (c) $(P \vee Q) \wedge \sim R$ (d) $\sim P \wedge (\sim Q \wedge R)$

Watch Free Video Solution on Doubtnut

17 - 6015043

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

the length of intercept made by the line $\sqrt{2}x - y - 4\sqrt{2} = 0$ on the parabola $y^2 = 4x$ is equal to (a) $6\sqrt{3}$ (b) $4\sqrt{3}$ (c) $8\sqrt{2}$ (d) $6\sqrt{2}$

Watch Free Video Solution on Doubtnut

18 - 6015044

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If matrix $A = \begin{bmatrix} 2 & b & 1 \\ b & b^2+1 & b \\ 1 & b & 2 \end{bmatrix}$ Then minimum value of $\frac{|A|}{b}$ is equal to (a) $2\sqrt{3}$ (b) $-2\sqrt{3}$ (c) $\sqrt{3}$ (d) $-\sqrt{3}$

Watch Free Video Solution on Doubtnut

19 - 6015045

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The equation $\frac{y^2}{1+r}-\frac{x^2}{1-r}=1$ (a) represents a hyperbola of eccentricity equal to $\frac{2}{\sqrt{r+1}}$ if $r \in (0,1)$ (b) represents a hyperbola of eccentricity equal to $\sqrt{\frac{1-r}{1+r}}$ if $r \in (0,1)$ (c) represents a ellipse of eccentricity equal to $\sqrt{\frac{2}{r+1}}$ if $r>1$ (d) represents a ellipse of eccentricity equal to $\sqrt{\frac{r+1}{2}}$ if $r>1$

Watch Free Video Solution on Doubtnut

20 - 6015046

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

if $\sum_{r=0}^{25} .^{50}C_r(.^{50-r}C_{25-r})=k(.^{50}C_{25})$, then k equals: (a) 2^{25} (b) $2^{25}-1$ (c) 2^{24} (d) 25^2

Watch Free Video Solution on Doubtnut

21 - 6015047

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

A plane bisects the line segment joining $(-3,-3,4)$ and $(3,7,6)$ and also perpendicular to this line, then the point lies on the plane can be (a) $(1,-2,3)$ (b) $(1,2,2)$ (c) $(3,-5,2)$ (d) $(3,-1,0)$

Watch Free Video Solution on Doubtnut

22 - 6015048

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The value of $\cot\sum_{n=1}^{19}\left(\cot^{-1}\left(1+\sum_{p=1}^{n}2p\right)\right)$ is equal to (a) $\frac{21}{19}$ (b) $\frac{19}{21}$ (c) $-\frac{19}{21}$ (d) $-\frac{21}{19}$

Watch Free Video Solution on Doubtnut

23 - 6015049

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The mean and standard deviation of five observations x_1, x_2, x_3, x_4, x_5 and are 10 and 3 respectively, then variance of the observation $x_1, x_2, x_3, x_4, x_5, -50$ is equal to (a) 437.5 (b) 507.5 (c) 537.5 (d) 487.5

Watch Free Video Solution on Doubtnut

24 - 6015050

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $f(x)$ is a differentiable function such that $f'(x) = 7 - \frac{3}{4}\frac{f(x)}{x}$, $f(1) \neq 4$, then $\lim_{x \to 0^+} x \cdot f\left(\frac{1}{x}\right)$ is equal to (a) does not exist (b) exist and equal to 4 (c) exist and is equal to $\frac{4}{7}$ (d) exists and equal to 0

Watch Free Video Solution on Doubtnut

25 - 6015051

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If two vertices of a triangle are $(0, 2)$ and $(4, 3)$ and its orthocentre is $(0, 0)$ then the third vertex of the triangle lies in (a) 1st quadrant (b) 2^{nd}quadrant (c) 3rd quadrant (d) 4th quadrant

Watch Free Video Solution on Doubtnut

26 - 6015052

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The value of $\int_{-\pi/2}^{\pi/2} \frac{dx}{[x] + [\sin x] + 4}$ is equal to (a) $\frac{3}{20}(4\pi - 3)$ (b) $\frac{3}{10}(4\pi - 3)$ (c) $\frac{1}{12}(7\pi - 5)$ (d) $\frac{1}{12}(7\pi - 3)$

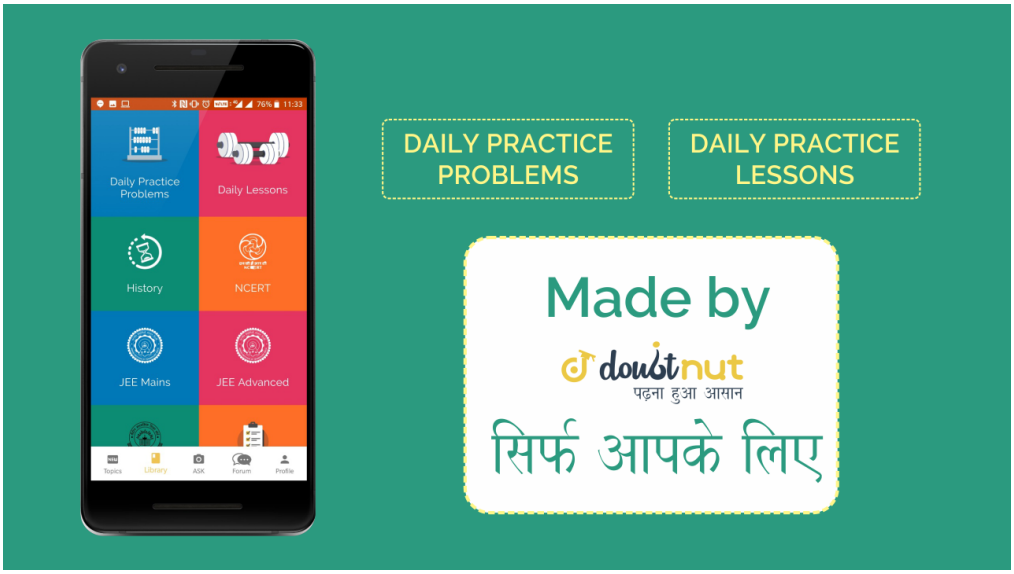
Watch Free Video Solution on Doubtnut

27 - 6015053

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Which of the following line is passing through point of intersection of line $\frac{x-4}{2} = \frac{y-3}{2} = \frac{z-5}{1}$ and the plane $x + y + z = 2$ (a) $\frac{x}{2} = \frac{y+1}{3} = \frac{z-3}{4}$ (b) $\frac{x-2}{3} = \frac{y-1}{3} = \frac{z-3}{2}$ (c) $\frac{x}{2} = \frac{y+1}{3} = \frac{z-2}{4}$ (d) $\frac{x-2}{2} = \frac{y+1}{3} = \frac{z+3}{4}$

Watch Free Video Solution on Doubtnut



JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

28 - 6015054

If $a_1, a_2, ..., a_{10}$ are in G.P, where $a_i > 0$ and S is a set of ordered pairs (r, k) such that $\begin{bmatrix} \ln a_1^r a_2^k & \ln a_2^r a_3^k & \ln a_3^r a_4^k \\ \ln a_4^r a_5^k & \ln a_5^r a_6^k & \ln a_6^r a_7^k \\ \ln a_7^r a_8^k & \ln a_8^r a_9^k & \ln a_9^r a_{10}^k \end{bmatrix} = 0$, then number of pairs (r, k) is (a) infinitely many (b) 1 (c) 5 (d) 3

Watch Free Video Solution on Doubtnut

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

29 - 6015055

In a ΔABC, $\angle A + \angle B = 120^\circ$, $a = \sqrt{3} + 1$, $b = \sqrt{3} - 1$, then the ratio of $\angle A$ to $\angle B$ is (a) $7:1$ (b) $5:1$ (c) $3:1$ (d) $5:3$

Watch Free Video Solution on Doubtnut

JEE MAINS 10 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

30 - 6015056

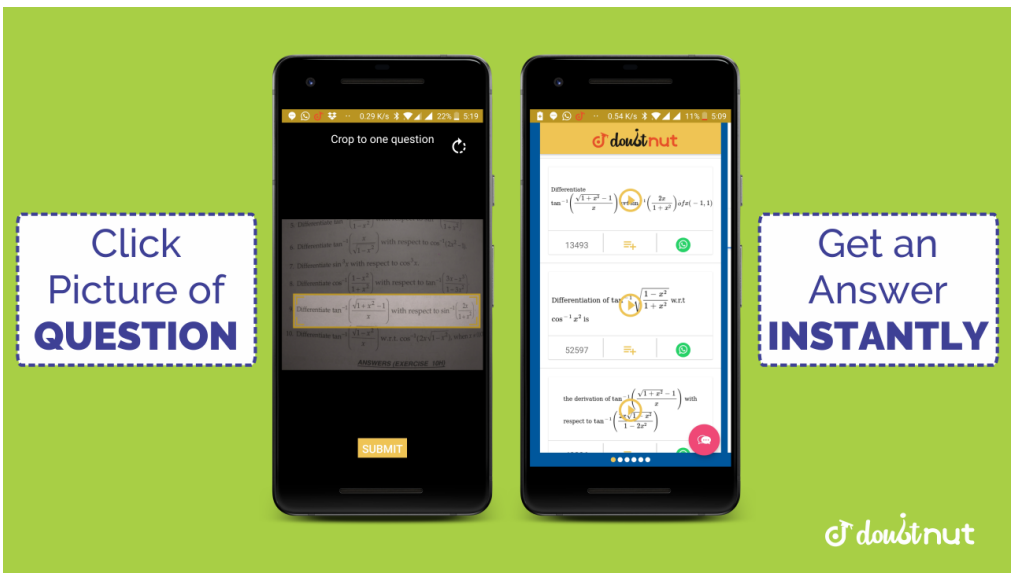
A helicopter flying along the path $y = 7 + x^{3/2}$, A soldier standing at point $\left(\frac{1}{2}, 7\right)$ wants to hit the helicopter when it is closest from him, then minimum distance is equal to (a) $\frac{1}{6}\frac{\sqrt{2}}{3}$ (b) $\frac{1}{2}$ (c) $\frac{1}{3}\sqrt{\frac{2}{3}}$ (d) $\sqrt{\frac{5}{2}}$

Watch Free Video Solution on Doubtnut

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1

ACTUAL PAPER

Ques No.	Question
1 - 6014946	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If $y(x)$ is solution of differential equation satisfying $\frac{dy}{dx}+\left(\frac{2x+1}{x}\right)y=e^{-2x}, y(1)=\frac{1}{2}e^{-2}$ then (A) $y(\log_e 2)=\log_e 2$ (B) $y(\log_e 2)=\frac{\log_e 2}{4}$ (C) $y(x)$ is decreasing is $(0,1)$ (D) $y(x)$ is decreasing is $\left(\frac{1}{2},1\right)$ Watch Free Video Solution on Doubtnut
2 - 6014947	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** The value of $\int_{-2}^{2}\frac{\sin^2 x}{\left[\frac{x}{\pi}\right]+\frac{1}{2}}dx$ is where $[\cdot]=G.I.F$ (A) 1 (B) 0 (C) 2 (D) -1 Watch Free Video Solution on Doubtnut
3 - 6014948	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If $\int\frac{\sqrt{1-x^2}}{x^4}dx=A(x).\left(\sqrt{1-x^2}\right)^m$ where $A(x)$ is a function of x then $(A(x))^m$= (A) $-\frac{1}{27x^9}$ (B) $\frac{1}{(27x)^9}$ (C) $\frac{1}{3x^9}$ (D) $-\frac{1}{3x^9}$ Watch Free Video Solution on Doubtnut

4 - 6014949	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Let $a_1, a_2, a_3, ?a_{10}$are in G.P. if $\frac{a_3}{a_1} = 25$ then $\frac{a_9}{a_5}$ is equal to (A) 5^4 (B) 4.5^4 (C) 4.5^3 (D) 5^3 Watch Free Video Solution on Doubtnut
5 - 6014950	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If q is false and $(p \wedge q) \leftrightarrow r$ is also true then which of the following are tautology (A) $(p \vee r) \rightarrow (p \wedge r)$ (B) $(p \vee r)$ (C) $(p \wedge r) \rightarrow (p \vee r)$ (D) $p \wedge r$ Watch Free Video Solution on Doubtnut
6 - 6014951	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If x, y are real and $\left(-2 - \frac{i}{3}\right)^3 = \frac{x + iy}{27}$ then value of $y - x$ is equal to (A) 91 (B) -91 (C) 85 (D) -85 Watch Free Video Solution on Doubtnut
7 - 6014952	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** The locus of mid points of intercept made by tangents between co-ordinate axis of ellipse $x^2 + 2y^2 = 2$ is (A) $\frac{1}{4x^2} + \frac{1}{2y^2} = 1$ (B) $\frac{x^2}{2} + \frac{y^2}{4} = 1$ (C) $\frac{x^2}{4} + \frac{y^2}{2} = 1$ (D) $\frac{1}{2x^2} + \frac{1}{4y^2} = 1$ Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
8 - 6014953	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If the sum of infinite positive G.P. is 3 and sum of cubes of there terms is $\frac{27}{19}$ then common ratio of G.P. is equal to (A) $\frac{1}{3}$ (B) $\frac{2}{3}$ (C) $\frac{5}{7}$ (D) $\frac{1}{4}$ Watch Free Video Solution on Doubtnut
9 - 6014954	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER**

Evaluate $\lim_{x->0} \frac{\tan(\pi \sin^2 x) + (|x| - \sin(x[x]))^2}{x^2}$, where $[\cdot] = G.I.F$ (A) $\pi + 1$ (B) π (C) -1 (D) Does not exist

Watch Free Video Solution on Doubtnut

10 - 6014955

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $f(x) = \begin{cases} -1 & -2 \le x < 0 \\ x^2 - 1 & 0 \le x < 2 \end{cases}$ if $g(x) = |f(x)| + f(|x|)$ then $g(x)$ in $(-2, 2)$ (A) not continuous (B) not differential at one point (C) differential at all points (D) not differential at two points

Watch Free Video Solution on Doubtnut

11 - 6014956

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A square is incribed in a circle $x^2 + y^2 - 6x + 8y - 103 = 0$ such that its sides are parallel to co-ordinate axis then the distance of the nearest vertex to origin, is equal to (A) 13 (B) $\sqrt{127}$ (C) $\sqrt{41}$ (D) 1

Watch Free Video Solution on Doubtnut

12 - 6014957

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $A = \begin{bmatrix} 0 & 2q & r \\ p & q & -r \\ p & -q & r \end{bmatrix}$ and $AA' = I$ then value of $|p|$ is equal to (A) $\frac{1}{\sqrt{3}}$ (B) $\frac{1}{\sqrt{2}}$ (C) $\frac{1}{\sqrt{6}}$ (D) $\frac{1}{\sqrt{5}}$

Watch Free Video Solution on Doubtnut

13 - 6014958

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The direction ratios of normal of a plane passing through two points $(0, 1, 0)$ & $(0, 0, 1)$ and makes an angle $\frac{\pi}{4}$ with the plane $y - z - 5 = 0$ are (A) $(2, -\sqrt{2}, \sqrt{2})$ (B) $(\sqrt{2}, -1, 1)$ (C) $(\sqrt{2}, 1, 1)$ (D) $(2, \sqrt{2}, 1)$

Watch Free Video Solution on Doubtnut

14 - 6014959

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $f_k(x) = \frac{1}{k}\left(\sin^k x + \cos^k x\right)$ then $f_4(x) - f_6(x) =$ (A) $\frac{1}{12}$ (B) $\frac{5}{12}$ (C) $\frac{-1}{12}$ (D) $-\frac{5}{12}$

Watch Free Video Solution on Doubtnut

15 - 6014960

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

From the set of numbers 1 to 11 two number are taken such that their sum is eve, then the conditional probability that selected numbers are even is equal to (A) $\frac{3}{7}$ (B) $\frac{3}{5}$ (C) $\frac{5}{7}$ (D) $\frac{2}{5}$

Watch Free Video Solution on Doubtnut

16 - 6014961

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $\vec{a} = \hat{i} + 2\hat{j} + 3\hat{k}$, $\vec{b} = \hat{i} + \lambda\hat{j} + 4\hat{k}$, $\vec{c} = 2\hat{i} + 4\hat{j} + \left(\lambda^2 - 1\right)\hat{k}$ then find the non zero value of $\vec{a} \times \vec{c}$, given $\vec{a}$, $\vec{b}$ and $\vec{c}$ are coplanar (A) $2\hat{i} - \hat{j}$ (B) $-10\hat{i} + 5\hat{j}$ (C) $2\hat{i} + \hat{j}$ (D) $\hat{i} + \hat{j} + \hat{j}k$

Watch Free Video Solution on Doubtnut

17 - 6007781

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If the plane containing the line $\frac{x-3}{2} = \frac{y+2}{-1} = \frac{z-1}{3}$ and also containing its projection on the plane $2x + 3y - z = 5$ contains which one of the following points? (a) $(2, 2, 0)$ (b) $(2, 0, -2)$ (c) $(0, -2, 2)$ (d) $(-2, 2, 2)$

Watch Free Video Solution on Doubtnut

18 - 6014962

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $x\log_e(\log_e x) - x^2 + y^2 = 4$ then $\left(\frac{dy}{dx}\right)_{atx=e}$ is equal to (A) $\frac{2e+1}{\sqrt{4+e^2}}$ (B) $\frac{e}{2\sqrt{4+e^2}}$ (C) $\frac{2e+1}{2(4+e^2)}$ (D) $\frac{2e-1}{2(4+e^2)}$

Watch Free Video Solution on Doubtnut

19 - 6014964

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If range of $y = \frac{x}{1+x^2}, \forall x \varepsilon R$ is equal to (A) $[-1, 1]$ (B) $\left[-\frac{1}{2}, \frac{1}{2}\right]$ (C) $R - \left[-\frac{1}{2}, \frac{1}{2}\right]$ (D) $R - [-1, 1]$

Watch Free Video Solution on Doubtnut

20 - 6014965

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If the middle term of the expansion of $\left(\frac{x^3}{3} + \frac{3}{x}\right)^8$ is 5670 then sum of all real values of x is equal to (A) 6 (B) 3 (C) 0 (D) 2

Watch Free Video Solution on Doubtnut

21 - 6014966

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The system of linear equations $x + 2y + 4z = a, 3x - y + 5z = b, 2x - 3y + z = c$ have more than two solutions then which of following is true (A) $b - a - c = 0$ (B) $c - a - b = 0$ (C) $a - b - c = 0$ (D) $a + b + c = 0$

Watch Free Video Solution on Doubtnut

22 - 6014967

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Area bounded between the curves $x^2 = 4y$ and $x = 4y - 2$ (in square units) is (A) $\frac{9}{8}$ (B) $\frac{9}{4}$ (C) $\frac{8}{9}$ (D) $\frac{4}{9}$

Watch Free Video Solution on Doubtnut

23 - 6014968

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If one root is cube of the other of equation $81x^2 + kx + 256 = 0$ then value of k is equal to (A) 100 (B) -300 (C) -81 (D) 400

Watch Free Video Solution on Doubtnut

24 - 6014969

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Two circle of equal radii are intersect at $(0,1)$ and $(0,1)$, and the tangent at $(0,1)$ to one of those passes through the centre of other. Then the distance between the centres is equal to (A) 2c (B)$\sqrt{2}$(C) $\frac{1}{\sqrt{2}}$(D) $\frac{1}{2}$

Watch Free Video Solution on Doubtnut

25 - 6014970

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A line $2x+y=1$ intersect co-ordinate axis at points A and B. A circle is drawn passing through origin and point A & B. If perpendicular from point A and B are drawn on tangent to the circle at origin then sum of perpendicular distance is (A) $\frac{5}{\sqrt{2}}$ (B) $\frac{\sqrt{5}}{2}$ (C) $\frac{\sqrt{5}}{4}$ (D) $\frac{5}{2}$

Watch Free Video Solution on Doubtnut

26 - 6014971

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

In a triangle, the sum of lengths of two sides is x and the product of the length of the same teo sides is y. If $x^2-c^2=y$ where c is the length of the third side of the triangle, then the circumradius of the triangle is: 1. $\frac{c}{\sqrt{3}}$ 2. $\frac{y}{\sqrt{3}}$ 3. $\frac{c}{3}$ 4. $\frac{3}{2}y$

Watch Free Video Solution on Doubtnut

27 - 6014972

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The equation of common tangent to the curves $y^2=4x$ and $xy=2$ is (A) $x+2y-4=0$ (B) $x+2y+4=0$ (C) $x-2y+4=0$ (D) $x-2y-4=0$

Watch Free Video Solution on Doubtnut

28 - 6014973

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If x satisfies the condition $f(x) = \{x : x^2 + 30 \leq 11x\}$ then maximum value of function $f(x) = 3x^3 - 18x^2 - 27x - 40$ is equal to (A) -122 (B) 122 (C) 222 (D) -222

Watch Free Video Solution on Doubtnut

29 - 6014974

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Out of 30 observation 10 are $\frac{1}{2} + d$, 10 are $\frac{1}{2}$ and other 10 are $\frac{1}{2} - d$ whose variance is $\frac{4}{3}$ then $|d|$ is equal to (A) 1 (B) $\sqrt{2}$ (C) $\sqrt{3}$ (D) $\frac{1}{\sqrt{2}}$

Watch Free Video Solution on Doubtnut

30 - 6014975

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Value of r for which expression $20C_r^{20}C_0 + 20C_{r-2}^{20}C_1 + 20C_{r-2}^{20}C_2 + ... + 20C_0^{20}C_r$ is maximum is equal to (A) 10 (B) 20 (C) 15 (D) 11

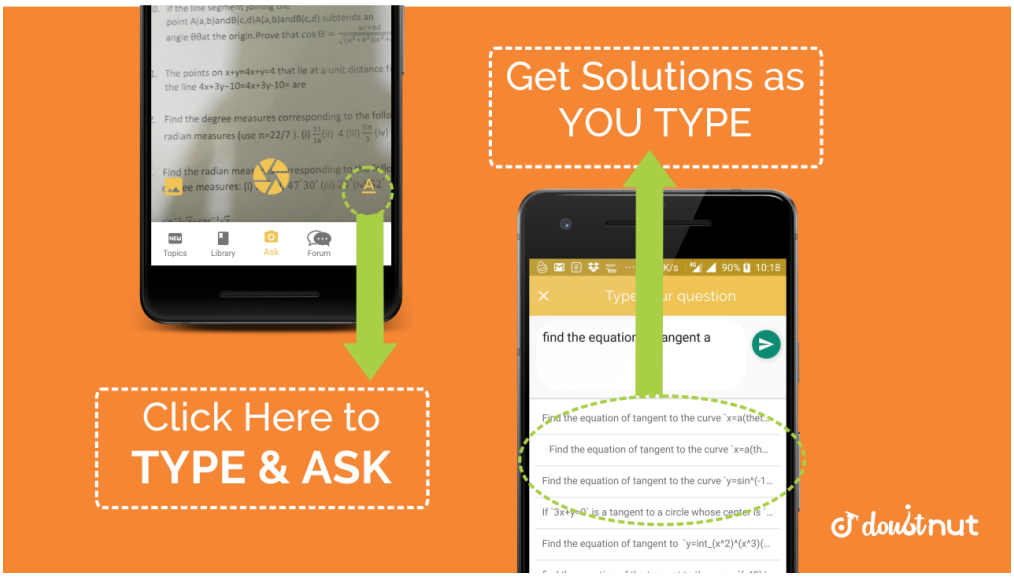
Watch Free Video Solution on Doubtnut

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2

ACTUAL PAPER

Ques No.	Question
1 - 6015057	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** $\lim_{x->0} \frac{x \cot 4x}{(\cot^2 2x)(\sin^2 x)}$ is equal to (A) 1 (B) 2 (C) 4 (D) 6 Watch Free Video Solution on Doubtnut
2 - 6015058	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If $(\cot^{-1} x)^2 - 7(\cot^{-1} x) + 10 > 0$ then range of x will be (A) $(-\infty, \cot 2)$ (B) $(-\infty, \cot 5)$ (C) $(\cot 2, \cot 5)$ (D) $(\cot 2, \infty)$ Watch Free Video Solution on Doubtnut
3 - 6015059	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** In a hyperbola, length of minor axis is 5 and distance between focii is 13. Then eccentricity is (A) $\frac{6}{5}$ (B) $\frac{13}{12}$ (C) $\frac{17}{13}$ (D) $\frac{12}{7}$ Watch Free Video Solution on Doubtnut
4 - 6015060	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** $y^2 + 4(x - a^2) = 0$. One of the vertexes of $\Delta'(\Delta)$ is a vertex of the given parabola and other two vertices are they where parabola meets they -exist. If area of Δ is 250.Then a will be (A) 5 (B) $5\sqrt{3}$ (C)

	$25\sqrt{3}$ (D)$3\sqrt{5}$ Watch Free Video Solution on Doubtnut
5 - 6007895	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Two lines $\frac{x-3}{1}=\frac{y+1}{3}=\frac{z-6}{-1}$ and $\frac{x+5}{7}=\frac{y-2}{-6}=\frac{z-3}{4}$ intersect in point R. The reflection of R in the xy-plane has coordinates: (a) $(2,-4,-7)$ (b) $(2,4,7)$ (c) $(2,-4,7)$ (d) $(-2,4,7)$ Watch Free Video Solution on Doubtnut
6 - 6015061	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Contrapositive of the statement. If the squares of two numbers are equal then the numbers are equal is (A) If the squares of two numbers are equal then the numbers are equal (B) If the squares of two numbers are not equal then the numbers are not equal (C) If two numbers are not equal then the square of the numbers are not equal (D) If squares of two numbers are equal then the numbers are to equal Watch Free Video Solution on Doubtnut
7 - 6015062	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Given $ABCD$ is a parallelogram wilth vertices as $A(1,2)$, $B(3,4)$ and $C(2,3)$. Then the equation of line AD is (A) $x+y+1=0$ (B) $x-y+1=0$ (C) $-x+y+1=0$ (D) $x+y-1=0$ Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
8 - 6015063	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** The value of $\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \frac{dx}{\sin 2x.\left(\tan^5 x+\cot^5 x\right)}$ is (A) $\frac{\pi}{40}$ (B) $\frac{\pi}{60}$ (C) $\frac{\pi}{120}$ (D) $\frac{\pi}{20}$ Watch Free Video Solution on Doubtnut
9 - 6015064	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If x, y is positive real numbers then maximum value of $\frac{x^m y^m}{(1+x^{2m})(1+y^{2n})}$ is (A) $\frac{1}{4}$ (B) $\frac{1}{2}$ (C)

	$\frac{m+n}{6mn}$ (D) 1 Watch Free Video Solution on Doubtnut
10 - 6015065	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Let $S_n = 1 + q + q^2 + ? + q^n$ and $T_n = 1 + \left(\frac{q+1}{2}\right) + \left(\frac{q+1}{2}\right)^2 + ? + \left(\frac{q+1}{2}\right)^n$ If $\alpha T_{100} = {}^{101}C_1 + {}^{101}C_2 x S_1 + {}^{101}C_{101} x S_{100}$, then the value of α is equal to (A) 2^{99} (B) 2^{101} (C) 2^{100} (D) -2^{100} Watch Free Video Solution on Doubtnut
11 - 6015066	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If α, β are roots of $x^2 \sin\theta - (\cos\theta \sin\theta + 1)x + x\cos\theta = 0$ where $\alpha < \beta$ and $\theta \varepsilon (0, \pi/4)$ then value of $\sum_{n=0}^{\infty}\left(\alpha^n + \frac{(-1)^n}{\beta^n}\right)$ (A) $\frac{1-\cos\theta}{\sin\theta} + \frac{1-\sin\theta}{\cos\theta}$ (B) $\frac{1}{1+\cos\theta} + \frac{1}{1-\sin\theta}$ (C) $\frac{1}{1-\cos\theta} + \frac{1}{1-\sin\theta}$ (D) $\frac{1}{1-\cos\theta} - \frac{1}{1+\sin\theta}$ Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
12 - 6015067	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** There are 30 white balls and 10 red balls in bag. 16 balls are drawn with replacement from the bag. If X be the number of white balls drawn then the value of $\frac{\text{mean}(X)}{\text{standard deviation}(X)}$ is equal to (A) $4\sqrt{3}$ (B) $2\sqrt{3}$ (C) $3\sqrt{3}$ (D) $3\sqrt{2}$ Watch Free Video Solution on Doubtnut
13 - 6015068	**JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If $\|z\| + z = 3 + i$, then value of $\|z\|$ is (A) $5/3$ (B) $3/5$ (C) $4/3$ (D) $3/4$ Watch Free Video Solution on Doubtnut

14 - 6015069

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $\begin{vmatrix} a-b-c & 2a & 2a \\ 2b & b-a-c & 2b \\ 2c & 2c & c-a-b \end{vmatrix} = (a+b+c)(x+a+b+c^2)$ then thhe value of x is equal to (A) $-2(a+b+c)$ (B) $a+b+c$ (C) $-(a+b+c)$ (D) $2(a+b+c)$

Watch Free Video Solution on Doubtnut

15 - 6015070

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Position vector of ponts A, B, C are $\vec{a}, \vec{b}, \vec{c}$ respectively which are by $\vec{a} = \sqrt{3}\hat{i} + \hat{j}$, $\vec{b} = \hat{i} + \sqrt{3}\hat{j}$, $\vec{c} = \beta\hat{i} + (1-\beta)\hat{j}$. If distance of point C from angle bisector of OA and OB is $\frac{3}{\sqrt{2}}$ (A) 1 (B) 2 (C) 4 (D) 3

Watch Free Video Solution on Doubtnut

16 - 6015071

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If for a non constant $A.P.$ $t_{19} = 0$. Then the ratio of $t_{49} : t_{29}$ is (A) $1:2$ (B) $2:3$ (C) $3:1$ (D) $1:3$

Watch Free Video Solution on Doubtnut

17 - 6015072

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $\int \frac{(x+1)}{\sqrt{2x-1}} dx = f(x)\sqrt{2x-1} + C$. Then $f(x)$ is equal to (A) $\frac{x+4}{3}$ (B) $\frac{x+3}{4}$ (C) $\frac{2}{3}(x+2)$ (D) $x+4$

Watch Free Video Solution on Doubtnut

18 - 6015073

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

A function $f:(0,\infty) \to [0,\infty]$ is given by $f(x) = \left|1 - \frac{1}{x}\right|$, then $f(x)$ is (A) Injective but not surjective (B) Injective and bijective (C) Injective only (D) Surjective only

Watch Free Video Solution on Doubtnut

19 - 6015074

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Set of value of x for which $f(x) = \sin|x| - |x| + 2(x - \pi)\cos|x|$ is not differentiable is (A) ϕ (B) $\{0\}$ (C) $\{0, \pi\}$ (D) $\{\pi\}$

Watch Free Video Solution on Doubtnut

20 - 6015075

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If the curve C is given by the relation $y = x^2 + 1$. Then the area enclosed by the curve C, tangent to curve C at point $(2, 5)$ and coordinate axis in the first quadrant, is (A) $\frac{30}{17}$ (B) $\frac{37}{24}$ (C) $\frac{17}{7}$ (D) $\frac{8}{3}$

Watch Free Video Solution on Doubtnut

21 - 6015076

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let ΔABC is $\frac{b+c}{11} = \frac{c+a}{12} = \frac{a+b}{12}$ (where $AB = c, BC = a$ and $AC = b$) and $\frac{\cos A}{\alpha} = \frac{\cos B}{\beta} = \frac{\cos C}{\gamma}$ then possible ordered tripblet of (α, β, γ) is (A) (9, 17, 25) (B) (19, 7, 25) (C) (7, 19, 25) (D) (19, 25, 7)

Watch Free Video Solution on Doubtnut

22 - 6015077

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Find $y(x)$, if it satisfies the following differential equation $\frac{dy}{dx} = (x - y)^2$, and given that $y(1) = 1$ (A) $-\ln\left|\frac{1-x+y}{1+x-y}\right| = 2(x-1)$ (B) $\ln\left|\frac{2-y}{2-x}\right| = x + y - 1$ (C) $\ln\left|\frac{1-x+y}{1+x-y}\right| = 2(x-1)$ (D) $\frac{1}{2}\ln\left|\frac{1-x+y}{1+x-y}\right| + \ln|x| = 0$

Watch Free Video Solution on Doubtnut

23 - 6008003

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let the length of latus rectum of an ellipse with its major axis along x-axis and center at the origin, be 8. If the distance between the foci of this ellipse is equal to the length of the minor axis , then which of the

following points lies on it: (a) $\left(4\sqrt{2}, 2\sqrt{2}\right)$ (b) $\left(4\sqrt{3}, 2\sqrt{2}\right)$ (c) $\left(4\sqrt{3}, 2\sqrt{3}\right)$ (d) $\left(4\sqrt{2}, 2\sqrt{3}\right)$

Watch Free Video Solution on Doubtnut

24 - 6008116

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let $S = \{1, 2, ..., 20\}$. A subset B of S is said to be $''nice''$, if the sum of the elements of B is 203. Then the probability that a randomly chosen subset of S is $''nice''$ is: (a) $\frac{7}{2^{20}}$ (b) $\frac{5}{2^{20}}$ (c) $\frac{4}{2^{20}}$ (d) $\frac{6}{2^{20}}$

Watch Free Video Solution on Doubtnut

25 - 6015078

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Two points $A(7, 0, 6)$ and $B(3, 4, 2)$ lie on a plane P_1 and Plane $P_2 : 2x - 5y = 15$ is perpendicular to the plane P_1 and the pont $(2, \alpha, \beta)$ also lie on plane P_1 . Then find the value of $(2\alpha, 3\beta)$ (A) 12 (B) 17 (C) 5 (D) 7

Watch Free Video Solution on Doubtnut

26 - 6015079

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $(x + 10)^{50} + (x - 10)^{50} = a_0 + a_1 x + a_2 x^2 + ... a_{50} x^2 + ... + a_{50} x^{50}$ then the value of a0a2 is equal to (A) 12.25 (B) 12.75 (C) 11.75 (D) 11.25

Watch Free Video Solution on Doubtnut

27 - 6015080

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If set $A = \{1, 2, 3, ..., 20\}$, then the find the number of onto functions from A to A such that $f(k)$ is a multiple of 3, whenever k is a multiple of 4. (A) $6^5 \times 15!$ (B) $5^6 \times 15!$ (C) $6! \times 5!$ (D) $6! \times 15!$

Watch Free Video Solution on Doubtnut

28 - 6015081

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

A circle cuts the chord on x-axis of length $4a$. If this circle cuts the y-axis at a point whose distance from origin is $2b$. Locus of its centre is (A) Ellipse (B) Parabola (C) Hyperbola (D) Straight line

Watch Free Video Solution on Doubtnut

29 - 6015082

JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $f(x)=\frac{x}{\sqrt{a^2+x^2}}+\frac{(d-x)}{\sqrt{b^2+(d-x)^2}}$ ten (A) $f(x)$ is strictly increasing (B) $f(x)$ is strictly deceasing (C) $f'(x)$ is constant (D) $f(x)$ is neither increasing nor decreasing

Watch Free Video Solution on Doubtnut

30 - 6015083

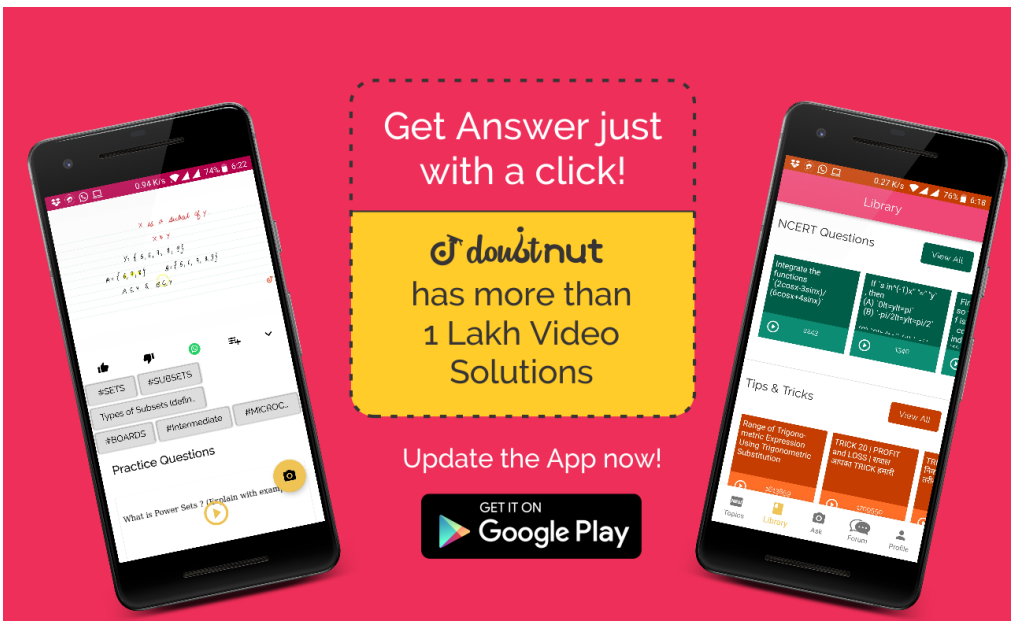
JEE MAINS 11 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $Det\left(AA^TB\right)=8$ and $Det\left(AB^{-1}\right)=8$, then the value of $Det\left(BB^TA^{-1}\right)$ is equal to (A) 116 (B) 14 (C) 16 (D) 1

Watch Free Video Solution on Doubtnut

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1

ACTUAL PAPER

Ques No.	Question
1 - 6008344	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** An ordered pair (α, β) for which the system of linear equations $(1+\alpha)x+\beta y+z=2$, $\alpha x+(1+\beta)y+z=3$ and $\alpha x+\beta y+2z=2$ has unique solution is: (a) (2,4) (b) (-3,1) (c) (-4,2) (d) (1,-3) Watch Free Video Solution on Doubtnut
2 - 6008477	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** The product of three consecutive terms of a GP is 512. If 4 is added to each of the first and the second of these terms, the three terms now form an AP. Then the sum of the original three terms of the given GP is: (a) 36 (b) 32 (c) 24 (d) 28 Watch Free Video Solution on Doubtnut
3 - 6014976	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** $((p \wedge q) \vee (p \vee \sim q)) \wedge (\sim p \wedge \sim q)$ is equivalent to (A) $\sim p \wedge \sim q$ (B) $p \wedge \sim q$ (C) $p \vee \sim q$ (D) $\sim p \vee q$ Watch Free Video Solution on Doubtnut
	
4 - 6014977	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** There are 3 boxes numbered $B(i=1,2,3)$ each having 10 balls also numbered from 1 to 10. Three balls are selected one from each box. If number on ball selected from B box is n such that $n_1 < n_2 < n_3$ then the number of ways equal to (A) $.^{10}C_3$ (B) $.^{10}C_2$ (C) $2.^{10}C_2$ (D) $2.^{10}C_3$

Watch Free Video Solution on Doubtnut

5 - 6014978

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A tetrahedron has vertices $O(0,0,0), A(1,2,1)$,B(2,1,3) and C(-1,1,2), $then \angle between face$OAB and ABC$willbea.$ cos^(-1)(17/31)$b.$ 30^@$c.$ 90^@$d.$ cos^(-1)(19/30)`

Watch Free Video Solution on Doubtnut

6 - 6014979

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

A hyperbola is given with its vertices at $(-2,0)$ and $(2,0)$ one of the foci of hyperbola is $(3,0)$. Then which of the following points does not lie on hyperbola (A) $(\sqrt{24},5)$ (B) $(\sqrt{44},5\sqrt{2})$ (C) $(\sqrt{44},-5\sqrt{2})$ (D) $(-6,5\sqrt{2})$

Watch Free Video Solution on Doubtnut

7 - 6014980

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $f_k = \frac{1+2+3+?+k}{k}$ Also is $f_1^2+f_2^2+f_3^2+?f_{10}^2 = \frac{5}{12}N$, then the value of N will be (A) 283 (B) 303 (C) 505 (D) 50

Watch Free Video Solution on Doubtnut

8 - 6014981

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If $\hat{i}+\hat{j}+\mu\hat{k}, \mu\hat{i}+\hat{j}+\hat{k}, \hat{i}+\mu\hat{j}+\hat{k}$ are coplanar vectors, then sum of all distinct values of μ is (A) 0 (B) 2 (C) -1 (D) 1

Watch Free Video Solution on Doubtnut

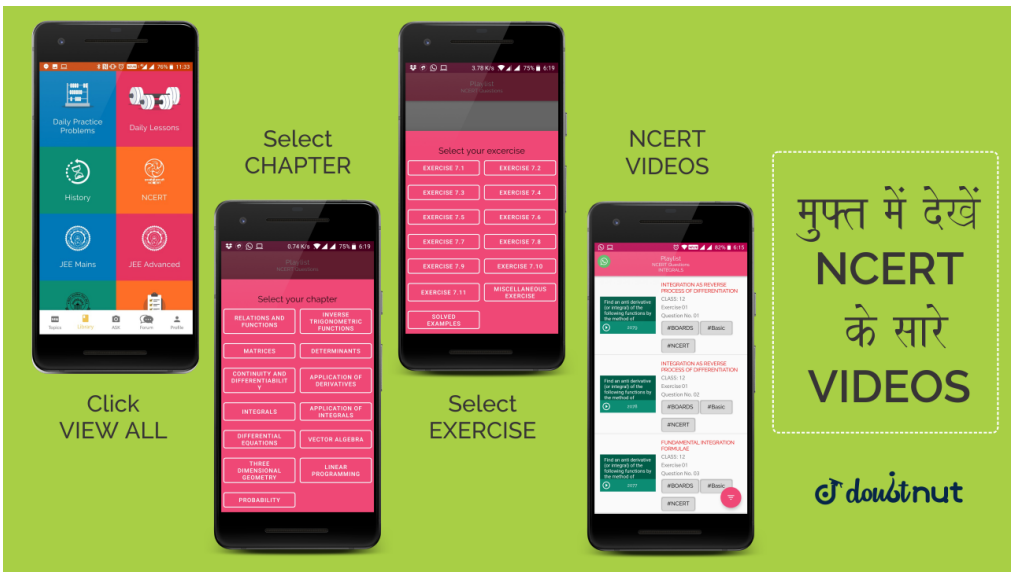
9 - 6014982

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$y^2 = 4x$ be the parabola and the points $A(9,6), B(4,-4)$ lie on the parabola such that area of $\triangle ABC$ is maximum (given C lies at the arc contain origin). Find the maximum area of $\triangle ABC$ (A) $\frac{101}{2}$ (B) $\frac{69}{2}$ (C) $\frac{125}{4}$ (D) $\frac{521}{3}$

Watch Free Video Solution on Doubtnut

10 - 6014983	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Let $P = \begin{bmatrix} 1 & 0 & 0 \\ 3 & 1 & 0 \\ 9 & 3 & 1 \end{bmatrix} Q = [q_{ij}]$ and $Q = P^5 + I_3$ then $\frac{q_{21} + q_{31}}{q_{32}}$ is equal to (A) 12 (B) 8 (C) 10 (D) 20 Watch Free Video Solution on Doubtnut
11 - 6008550	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Let $y = y(x)$ be the solution of the differential equation, $x\left(\frac{dy}{dx}\right) + y = x\log_e x,\ (x > 1)$ if $2y(2) = \log_e 4 - 1$, then $y(e)$ is equal to: (a) $-\left(\frac{e}{2}\right)$ (b) $-\left(\frac{e^2}{2}\right)$ (c) $\frac{e}{4}$ (d) $\frac{e^2}{4}$ Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
12 - 6014984	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** The area bounded by the region between curves $y = x^2 + 2, x = 0, x = 3, y = x + 1$ is s (A) $\frac{15}{2}$ (B) $\frac{15}{4}$ (C) $\frac{15}{3}$ (D) $\frac{17}{2}$ Watch Free Video Solution on Doubtnut
13 - 6014985	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** A dice is thrown repeatedly till two successive $4's$ are obtained then find the probability this process stops at 5th throw (A) $\frac{75}{6^5}$ (B) $\frac{125}{6^5}$ (C) $\frac{175}{6^5}$ (D) $\frac{35}{6^5}$ Watch Free Video Solution on Doubtnut
14 - 6014986	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Let $x^2 + y^2 - 2x - 2y - 2 = 0$ and $x^2 + y^2 - 6x - 6y + 14 = 0$ are two circles C_1, C_2 are the centre of circles and circles intersect at P, Q find the area of quadrilateral C_1PC_2Q (A) 12 (B) 6 (C) 8 (D) 4

	Watch Free Video Solution on Doubtnut
15 - 6014987	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Find minimum and maximum value of $3\cos x + 5\sin\left(x - \frac{\pi}{6}\right)$ Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
16 - 6014988	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** Let $\tan^{-1}2x + \tan^{-1}3x = \frac{\pi}{4}$ where $x \geq 0$. Let S is the set containing all the solutions of the equation then S contains (A) one element (B) Two element (C) more than two element (D) none of these Watch Free Video Solution on Doubtnut
17 - 6014989	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If ratio of the roots of the quadratic equation $3m^2x^2 + m(m-4)x + 2 = 0$ is λ such that $\lambda + \frac{1}{\lambda} = 1$ then least value of m is (A) $-2 - 2\sqrt{3}$ (B) $-2 + 2\sqrt{3}$ (C) $4 + 3\sqrt{2}$ (D) $4 - 3\sqrt{2}$ Watch Free Video Solution on Doubtnut
18 - 6014990	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If two circles with cenre $(1, 1)$ and radius 1 and circle with centre $(9, 1)$ and radius 2 lies opposite side of straight line $3x + 4y = \lambda$. The set of values of λ is (A) $[12, 21]$ (B) $[13, 22]$ (C) $[10, 18]$ (D) $[15, 24]$ Watch Free Video Solution on Doubtnut
19 - 6014991	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER** If $(2x)^{2y} = 4\left(e^{2x-2y}\right)$ then value of $\left(\frac{dy}{dx}\right)(\log_e 2x + 1)^2$ is equal to (A) $\frac{x\ln 2x + \ln 2}{x}$ (B) $\frac{x\ln 2x - \ln 2}{x}$ (C) $\frac{x\ln 2x - \ln 2}{2x}$ (D) $\frac{x\ln 2x + \ln 2}{2x}$ Watch Free Video Solution on Doubtnut

20 - 6014992

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$\int \cos(\log x)dx$ is equal to (A) $\frac{x}{2}(\cos(\log x) - \sin(\log x)) + c$ (B) $x(\cos(\log x) + \sin(\log x)) + c$ (C) $\frac{x}{2}(\cos(\log x) + \sin(\log x) + c$ (D) $x(\cos(\log x) - \sin(\log x)) + c$

Watch Free Video Solution on Doubtnut

21 - 6014993

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

In the expansion of $\left(2^{\frac{1}{3}} + \frac{1}{2(3)^{\frac{1}{3}}}\right)^{10}$ then $\frac{5^t htermombeg \in n \in g}{5^t htermomend}$ is equal to (A) $6^{\frac{1}{3}} : 1$ (B) $4(36)^{\frac{1}{3}} : 1$ (C) $2(36)^{\frac{1}{3}} : 1$ (D) $4(36)^{\frac{1}{3}} : 1$

Watch Free Video Solution on Doubtnut

22 - 6014994

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If the product of three number is G.P. is 512. If 4 is added in first number and second then number will be in A.P. then find the sum of the original numbers (A) 16 (B) 20 (C) 28 (D) 24

Watch Free Video Solution on Doubtnut

23 - 6008824

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

The perpendicular distance from the origin to the plane containing the two lines, $\frac{x+2}{3} = \frac{y-2}{5} = \frac{z+5}{7}$ and $\frac{x-1}{1} = \frac{y-4}{4} = \frac{z+4}{7}$ is: (a) $11\sqrt{6}$ (b) $\frac{11}{\sqrt{6}}$ (c) 11 (d) $6\sqrt{11}$

Watch Free Video Solution on Doubtnut

24 - 6014995

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Algebraic sum of all the deviation from 30 of 50 observations is 50. Find their mean (A) 20 (B) 30 (C) 80 (D) 31

Watch Free Video Solution on Doubtnut

25 - 6014996

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$f(x) = \min(\sin x, \cos x), x \in (-\pi, \pi)$ the values of x where $f(x)$ is non differentiable, is the set A. Then A is subset of (A) $\left\{\frac{-3\pi}{4}, \frac{-\pi}{4}, \frac{3\pi}{4}\right\}$ (B) $\left\{\frac{-\pi}{4}, \frac{\pi}{4}, \frac{3\pi}{3}\right\}$ (C) $\left\{\frac{-3\pi}{4}, \frac{3\pi}{4}\right\}$ (D) $\left\{\frac{-3\pi}{4}, \frac{-\pi}{4}, \frac{\pi}{4}, \frac{3\pi}{4}\right\}$

Watch Free Video Solution on Doubtnut

26 - 6014997

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $f(x) = f(a-x)$ and $g(x) + g(a-x) = 4 then \int_0^a f(x)g(x)dx$ is equal to (A) $2\int_0^a f(x)dx$ (B) $\int_0^a f(x)dx$ (C) $4\int_0^a f(x)dx$ (D) 0

Watch Free Video Solution on Doubtnut

27 - 6014998

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

$\lim_{x \to \frac{\pi}{4}} \frac{\cot^3 x - \tan x}{\cos\left(x + \frac{\pi}{4}\right)}$ is equal to (A) 8 (B) $4\sqrt{2}$ (C) $8\sqrt{2}$ (D) $2\sqrt{2}$

Watch Free Video Solution on Doubtnut

28 - 6014999

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Let $\frac{z-\alpha}{z+\alpha}$ is purely imaginary and $|z| = 2, \alpha \in \mathbb{R}$ then α is equal to (A) 2 (B) 1 (C) $\sqrt{2}$ (D) $\sqrt{3}$

Watch Free Video Solution on Doubtnut

29 - 6015000

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

Set $A = \{1, 2, 3, ... .10\}$ find the number of subsets of A such that the product of all the elements in the subset is even (A)$2^{51}\left(2^{50}-1\right)$ (B) $2^{50}\left(2^{50}-1\right)$ (C) $2^{50}\left(2^{51}-1\right)$ (D) $2^{51}\left(2^{49}\right)-1\right)$

Watch Free Video Solution on Doubtnut

30 - 6008927

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 1 - ACTUAL PAPER

If the vertices of the hyperbola be at $(-2, 0)$ and $(2, 0)$ and one of the foci be at $(-3, 0)$ then which one of the following points does not lie on the hyperbola? (a) $\left(-6, 2\sqrt{10}\right)$ (b) $\left(2\sqrt{6}, 5\right)$ (c) $\left(4, \sqrt{15}\right)$ (d) $\left(6, 5\sqrt{2}\right)$

Watch Free Video Solution on Doubtnut

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2

ACTUAL PAPER

Download Doubtnut Today

Ques No.	Question
1 - 6015084	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** A line passes through $(-3, 4)$ and the portion of the line intercepted between the coordinate axes is bisected at the point then equation of line is (A) $4x-3y+24=0$ (B) $x-y-7=0$ (C) $3x-4y+25=0$ (D) $3x-4y+24=0$ Watch Free Video Solution on Doubtnut
2 - 6009175	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** The set of all values of λ for which the system of linear equations: $x-2y-2z=\lambda x$, $x+2y+z=\lambda y$ and $-x-y=\lambda z$ has a non-trivial solution: (a) is an empty sheet (b) is a singleton (c) contains more than two elements (d) contains exactly two elements Watch Free Video Solution on Doubtnut
3 - 6015085	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Let $A=\{x: x\varepsilon z$ and $2^{(x-2)(x^2-5x+6)}=1\}, B=(x: x\varepsilon z$ and $-3<2x-1<9\}$. Find number of subsets of cartesian product $A\times B$ (A) 2^{18} (B) 2^{10} (C) 2^{15} (D) 2^{20} Watch Free Video Solution on Doubtnut
4 - 6015086	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** $\lim_{n\to\infty}\left(\frac{n}{n^1+1^2}+\frac{n}{n^2+2^2}+.....+\frac{n}{5n}\right)$ is equal to (A) $\frac{\pi}{2}$ (B) $\frac{\pi}{4}$ (C) $\tan^{-1}(2)$ (D) $\tan^{-1}(3)$

Watch Free Video Solution on Doubtnut

5 - 6015087

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

A circle of radius r passes through origin and cut the y-axis at P and Q. The locus of foot of perpendicular drawn from origin upon line joining the points P and Q is (A) $\left(x^2+y^2\right)^3=r^2\left(x^2y^2\right)$ (B) $\left(x^2+y^2\right)^2(x+y)=r^2(xy)$ (C) $\left(x^2+y^2\right)^2=r^2\left(x^2y^2\right)$ (D) $\left(x^2+y^2\right)^3=4r^2\left(x^2y^2\right)$

Watch Free Video Solution on Doubtnut

6 - 6015088

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

A tangent is drawn to parabola $y^2=8x$ which makes angle θ with positive direction of x-axis. The equation of tangent is (A) $y=x\tan\theta+2\cot\theta$ (B) $y\cot\theta=x-2\tan\theta$ (C) $y\cot\theta=x+2\tan\theta$ (D) $y\cot\theta=x-\tan\theta$

Watch Free Video Solution on Doubtnut

7 - 6015089

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $f(1)=2$, $f'(x)=f(x)$ and $h(x)=fof(x)$ then $h(1)$ is equal to (A) $4e$ (B) $2e^2$ (C) $4e^2$ (D) e^2

Watch Free Video Solution on Doubtnut

8 - 6015090

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

One of extremity of minor of ellipse is B. S and S' are focii of ellipse then area of right angle $\triangle SBS'$ is equal to 8. Then latus rectum of ellipse is equal to (A) 4 (B) $\frac{4}{\sqrt{2}}$ (C) $2\sqrt{2}$ (D) $\frac{3}{\sqrt{2}}$

Watch Free Video Solution on Doubtnut

9 - 6015091

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If z_1 and z_2 lies on $|z|=9$ and $|z-3-4i|=4$ respectively, find minimum possible value of $|z_1-z_2|$ (A) 0 (B) 5 (C) 13 (D) 2

Watch Free Video Solution on Doubtnut

10 - 6009302	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** Let $A = \begin{bmatrix} 1 & \sin\theta & 1 \\ -\sin\theta & 1 & \sin\theta \\ -1 & -\sin\theta & 1 \end{bmatrix}$, then for all $\theta \in \left(\frac{3\pi}{4}, \frac{5\pi}{4}\right)$ then $\lvert A \rvert$ lies in the interval : (A) $\left[\frac{1}{2}, 3\right)$ (B) $[1, 4)$ (C) $[-1, 2]$ (D) none of these Watch Free Video Solution on Doubtnut
11 - 6015092	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** $\int \frac{3x^{13} + 2x^{11}}{(4x^4 + 3x^2 + 1)^4} dx$ is equal to (A) $\frac{x^{12}}{6(4x^4 + 3x^2 + 1)^3} + C$ (B) $\frac{2}{3(4x^4 + 3x^2 + 1)^3} + C$ (C) $\frac{x^{12}}{3(4x^4 + 3x^2 + 1)^4} + C$ (D) $\frac{x^6}{6(4x^{-4} + 3x^{-2} + 1)^3} + C$ Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
12 - 6009374	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** int_1^e((x/e)^(2x)+(e/x)^x)log_ex dx$isequal \rightarrow (A)$e-1/(2e^2)-1/2(B)e-1/(2e^2)+1/2(C)e^3-1/(2e^2)-1/2` (D) none of these Watch Free Video Solution on Doubtnut
13 - 6015093	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** The number of irrational terms in expansion $\left(7^{\frac{1}{5}} - 3^{\frac{1}{10}}\right)^{60}$ is (A) 54 (B) 48 (C) 42 (D) 40 Watch Free Video Solution on Doubtnut
14 - 6015094	**JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER** If the tangent drawn to parabola $y = x^2 - 5x + 5$ at a point is parallel to $2y = 4x + \lambda$. Then the tangent passes through the point. (A) $\left(\frac{3}{4}, \frac{5}{2}\right)$ (B) $\left(-\frac{1}{8}, 7\right)$ (C) $(1, 3)$ (D) $\left(\frac{1}{8}, -7\right)$

Watch Free Video Solution on Doubtnut

15 - 6015095

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let $f(x) = x^3 - 3(a-2)x^2 + 3ax + 7$ and $f(x)$ is increasing in $(0, 1]$ and decreasing is $[1, 5)$, then roots of the equation $\frac{f(x) - 14}{(x-1)^2} = 0$ is (A) 1 (B) 3 (C) 7 (D) -2

Watch Free Video Solution on Doubtnut

16 - 6009475

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

In a game, a man wins Rs 100 if he gets 5 or 6 on a throw of a fair die and loses Rs 50 for getting any other number on the die. If he decides to throw the die either till he gets a five or a six or to a maximum of three throws, then his expected gain/loss (in rupees) is: (a) $\frac{400}{3}$ gain (b) $\frac{400}{9}$ loss (c) 0 (d) $\frac{400}{3}$ loss

Watch Free Video Solution on Doubtnut

17 - 6015096

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

A plane passing through three points $(-\lambda^2, 1, 1)(1, -\lambda^2, 1), (1, 1, \lambda^2)$ also passes through $(1, 1, -1)$ then set consisting all the real value of λ is (A) $\{-\sqrt{3}, \sqrt{3}\}$ (B) $\{3, -3\}$ (C) $\{1\}$ (D) $\{1, \sqrt{3}, -\sqrt{3}\}$

Watch Free Video Solution on Doubtnut

18 - 6015097

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

The statement $\sim(\sim p \rightarrow q)$ is equivalent to (A) $p \vee \sim q$ (B) $\sim p \wedge q$ (C) $\sim p \wedge \sim q$ (D) $\sim p \vee q$

Watch Free Video Solution on Doubtnut

19 - 6015098

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $.^n C_4, ^n C_5$ and $.^n C_6$ are in A.P. then n is equal to (A) 11 (B) 14 (C) 12 (D) 9

Watch Free Video Solution on Doubtnut

20 - 6015099

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Mean and variance of five observations are 4 and 5.2 respectively. If three of these observations are $3, 4, 4$ then find absolute difference between the other two observations (A) 3 (B) 7 (C) 2 (D) 5

Watch Free Video Solution on Doubtnut

21 - 6015100

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $y(x)$ satisfies the differential equation $\frac{dy}{dx} = \frac{x^2 - 2y}{x}$ where $y(1) = -2$ then $y(x)$ will pass through the poing (A) $\left(0, \sqrt{3}\right)$ (B) $(3, 0)$ (C) $\left(\sqrt{3}, 0\right)$ (D) $(0, 3)$

Watch Free Video Solution on Doubtnut

22 - 6015101

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $\alpha, \beta \varepsilon \left(0, \frac{\pi}{2}\right)$ and if $\sin^4 \alpha + 2\cos^4 \beta + 2 = 4\sqrt{2}\sin\alpha\cos\beta$then the value of $\cos(\alpha + \beta) - \cos(\alpha - \beta)$ is (A) $\sqrt{2}$ (B) $\frac{1}{\sqrt{2}}$ (C) $-\frac{1}{\sqrt{2}}$ (D) $-\sqrt{2}$

Watch Free Video Solution on Doubtnut

23 - 6015102

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

$\lim_{x \to \infty} \left(\frac{n}{n^2 + 1^2} + \frac{n}{n^2 + 2^2} + ? + \frac{n}{5n}\right)$ is equal to (A) $\frac{\pi}{2}$ (B) $\frac{\pi}{4}$ (C) $\tan^{-1}(2)$ (D) $\tan^{-1}(3)$

Watch Free Video Solution on Doubtnut

24 - 6015103

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

There are m men and 2 women. Everyone plays two matches will all other participants. If number of matches played between men exceeds the number of matches played between men and women by 84, them m is equal to (A) 6 (B) 3 (C) 5 (D) 12

Watch Free Video Solution on Doubtnut

25 - 6015104

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

If $\left(\frac{3}{4}\right)^3+\left(1\frac{1}{2}\right)^3+\left(2\frac{1}{4}\right)^3+?$ upto 15 terms $=225k,$ then k is equal to (A) 108 (B) 9 (C) 27 (D) 54

Watch Free Video Solution on Doubtnut

26 - 6015105

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

There are 60 students in a classes, out of which 40 opt for NCC, 30 opt for NSS and 20 for both, then the probability that a student has opted for none of the NCC or NSS is (A) $\frac{5}{6}$ (B) $\frac{1}{6}$ (C) $\frac{1}{3}$ (D) $\frac{1}{2}$

Watch Free Video Solution on Doubtnut

27 - 6009546

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

if an angle between the line,and the plane, $\frac{x-1}{2}=\frac{y-2}{1}=\frac{z-3}{-2}$ and the plane $x-2y-kz=3$ is $\frac{\cos^{-1}\left(2\sqrt{2}\right)}{3}$ then a value of k is:

Watch Free Video Solution on Doubtnut

28 - 6015106

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

$\lim_{x \to 1^-} \frac{\sqrt{\pi} - \sqrt{2\sin^{-1} x}}{\sqrt{1-x}} =$ (A) $\sqrt{\frac{2}{\pi}}$ (B) $\sqrt{\frac{\pi}{2}}$ (C) $\frac{1}{\pi}$ (D) $\sqrt{\frac{1}{\pi}}$

Watch Free Video Solution on Doubtnut

29 - 6015107

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let $\vec{a} = \left(\vec{b} \times \vec{c}\right) = \frac{\vec{b}}{2}$ and $\vec{b}$, $\vec{c}$ are non parallel unit vectors. If angle between $\vec{a}$ and $\vec{b}$ is α and angle between $\vec{a}$ and $\vec{c}$ is β then $|\alpha - \beta|$ is equal to (A) $\frac{\pi}{2}$ (B) $\frac{\pi}{6}$ (C) $\frac{\pi}{3}$ (D) $\frac{\pi}{4}$

Watch Free Video Solution on Doubtnut

30 - 6015108

JEE MAINS 12 JAN 2019 - PAPER 1 SHIFT 2 - ACTUAL PAPER

Let $f(x) = (1+m)x^2 - 2(1+3m)x + 4(1+2m)$. Numbe of interval values of m for which given qudratic expression is always positive is (A) 8 (B) 7 (C) 8 (D) 9

Watch Free Video Solution on Doubtnut