

Ques No.

Question

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If $\int \frac{dx}{x^3(1+x^6)^{2/3}} = x \cdot f(x) \cdot (1+x^6)^{1/3} + C$, then

$f(x)$ is equal to

(A) $\frac{-1}{2x^3}$

(B) $\frac{-1}{2x^2}$

(C) $\frac{-1}{6x^2}$

(D) $\frac{1}{6x^2}$

1 - 9407462

CORRECT OPTION: A

[Watch Free Video Solution on Doubtnut](#)

2 - 9407463

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If $f(1) = 1$, $f'(1) = 3$, then the value of derivative of $f\left(f(f(x)) + (f(x))^2\right)$ at $x = 1$ is

(A) 9

(B) 23

(C) 12

(D) 20

CORRECT OPTION: B

[© Watch Free Video Solution on Doubtnut](#)

3 - 9407464

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If sides of triangle are in A.P. and the largest angle is double smallest angle then find ratio of sides

(A) 3 : 5 : 6

(B) 4 : 5 : 6

(C) 2 : 3 : 5

(D) 3 : 4 : 5

CORRECT OPTION: B

[© Watch Free Video Solution on Doubnut](#)

4 - 9407465

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

Height of two towers are $20m$ and 80 . Join foot of the tower to the top of other and vice versa. Find the height of intersection point from the horizontal plane.

(A) 15

(B) 14

(C) 16

(D) 12

CORRECT OPTION: C

[📺 Watch Free Video Solution on Doubtnut](#)

5 - 9407466

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

$$f'(3) + f'(2) = 0$$

Find

the

$$\lim_{x \rightarrow 0} \left(\frac{1 + f(3 + x) - f(3)}{1 + f(2 - x) - f(2)} \right)^{\frac{1}{x}}$$

(A) e^1

(B) e^2

(C) 1

(D) e^{12}

CORRECT OPTION: C

[© Watch Free Video Solution on Doubtnut](#)

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

$$\sum_{k=1}^{20} k \frac{1}{2^k} \text{ is equal to}$$

(A) $2 - \frac{11}{2^{19}}$

(B) $1 - \frac{11}{2^{20}}$

(C) $2 + \frac{11}{2^{19}}$

(D) $1 + \frac{11}{2^{20}}$

6 - 9407467

CORRECT OPTION: A

[© Watch Free Video Solution on Doubtnut](#)

7 - 9407469

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If $(1 + m^2)x^2 - 2(1 + 3m)x + (1 + 8m) = 0$. Then numbers of values (s) of m for which this equation has no solution

(A) 3

(B) ∞

(C) 2

(D) 1

CORRECT OPTION: B

[📺 Watch Free Video Solution on Doubnut](#)

 **doubnut**
पढ़ना हुआ आसान

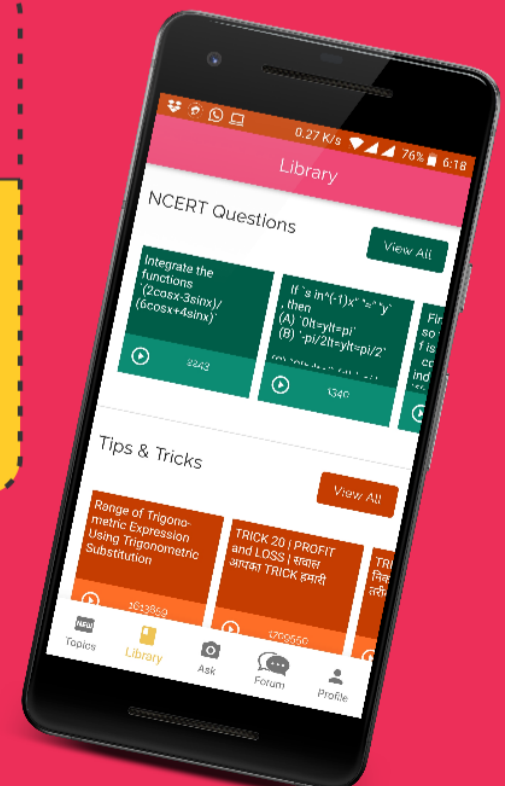


Get Answer just
with a click!


has more than
1 Lakh Video
Solutions

Update the App now!

GET IT ON
 **Google Play**



**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If points (h, k) , $(1, 2)$ and $(-3, 4)$ lie on line L_1 and points (h, k) and $(4, 3)$ lie on L_2 . If L_2 is perpendicular to L_1 , then value of $\frac{h}{k}$ is

(A) $-\frac{1}{7}$

(B) $\frac{1}{3}$

(C) 3

(D) 7

CORRECT OPTION: C

[📺 Watch Free Video Solution on Doubnut](#)

8 - 9407470

9 - 9407471

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

One of the focus of ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is $(0.5\sqrt{3})$ and difference in lengths of major and minor axis is 10 units.

Then length of latus rectum is

- (A) 3
- (B) 5
- (C) 10
- (D) 15

CORRECT OPTION: B

[© Watch Free Video Solution on Doubtnut](#)

10 - 9407472

JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 - MEMORY BASED - MATHS

The tangent of parabola $y^2 = 4x$ at the point where it cut the circle $x^2 + y^2 = 5$. Which of the following point satisfies the equation of tangent.

(A) (7, 5)

(B) (3, 4)

(C) (2, 2)

(D) (- 3, - 4)

CORRECT OPTION: B

[📺 Watch Free Video Solution on Doubtnut](#)

11 - 9407474

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If points $P(2, 3, 1)$, $R(4, y, z)$, $4Q(2, -1, 3)$ lie on the same line, then distance of point R from origin is :

(A) $\sqrt{21}$

(B) $2\sqrt{20}$

(C) $\sqrt{42}$

(D) $\sqrt{31}$

CORRECT OPTION: C

[📺 Watch Free Video Solution on Doubtnut](#)

12 - 9407475

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

The value of $(1 + Iz + z^5 + z^8)^9$ when $z = \frac{\sqrt{3} + i}{2}$ is

(A) 0

(B) -1

(C) $-i$

(D) $(-1 + i)^9$

CORRECT OPTION: C

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If $\begin{vmatrix} 1 & 1 & 1 \\ 2 & b & c \\ 4 & b^2 & c^2 \end{vmatrix}$ and $|A| = \in [2, 16]$. $2, b, c$ and in A.P. the

range of c is

(A) $[2, 4]$

(B) $[2 + 2^{1/3}, 4]$

(C) $[3, 2 + 2^{1/3}]$

(D) $[4, 6]$

13 - 9407476

CORRECT OPTION: D

14 - 9407477

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

The number of 4 digit numbers that can be formed using digits 0, 1, 2, 3, 4, 5 (repetition allowed) which are greater than 4321 is

(A) 306

(B) 310

(C) 288

(D) 280

CORRECT OPTION: B

[© Watch Free Video Solution on Doubtnut](#)

15 - 9407478

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

A coin is rolled n times. If the probability of getting head at least once is greater than 90 % then the minimum value of n is

(A) 4

(B) 3

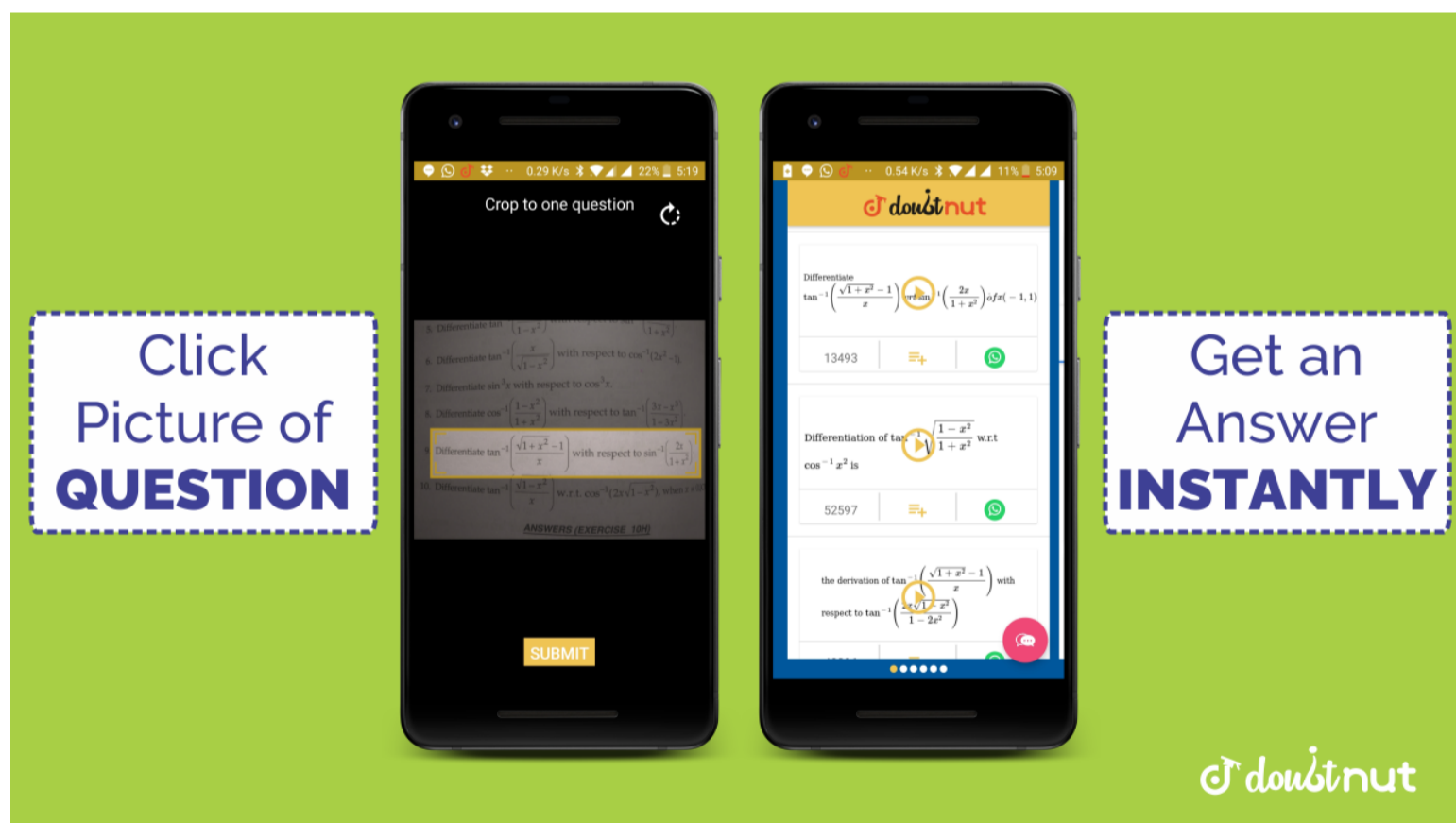
(C) 5

(D) 6

CORRECT OPTION: A

[👁 Watch Free Video Solution on Doubtnut](#)

 **doubtnut**
पढ़ना हुआ आसान



16 - 9407479

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

Let $f(x, y) = \{(x, y) : y^2 \leq 4x, 0 \leq x \leq \lambda\}$ and $s(\lambda)$ is area such that $\frac{S(\lambda)}{S(4)} = \frac{2}{5}$. Find the value of λ .

(A) $4 \left(\frac{4}{24} \right)^{1/3}$

(B) $4 \left(\frac{2}{25} \right)^{1/3}$

(C) $2 \left(\frac{4}{25} \right)^{1/3}$

(D) $2 \left(\frac{2}{25} \right)^{1/3}$

CORRECT OPTION: A

[© Watch Free Video Solution on Doubtnut](#)

17 - 9407480

JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 - MEMORY BASED - MATHS

The marks of a student in 6 tests are 41, 45, 54, 57, 43 and x . If the mean marks of these tests is 48. then standard deviation of these tests is

- (A) $\frac{10}{\sqrt{3}}$
- (B) $\frac{10}{\sqrt{2}}$
- (C) $\frac{10}{3}$
- (D) $\frac{20}{3}$

CORRECT OPTION: A

[© Watch Free Video Solution on Doubtnut](#)

18 - 9407481

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

The height of the cylinder of maximum volume which can be inscribed in a sphere of radius $3cm$ is

- (A) $\sqrt{3}$
- (B) $2\sqrt{3}$

$$(C) \frac{2\sqrt{3}}{3}$$

$$(D) 3\sqrt{2}$$

CORRECT OPTION: B

[📺 Watch Free Video Solution on Doubtnut](#)

19 - 9407482

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

The area of triangle formed by tangent and normal at point $(\sqrt{3}, 1)$ of the curve $x^2 + y^2 = 4$ and x-axis is :

$$(A) \frac{4}{\sqrt{3}}$$

$$(B) \frac{2}{\sqrt{3}}$$

$$(C) \frac{8}{\sqrt{3}}$$

$$(D) \frac{5}{\sqrt{3}}$$

CORRECT OPTION: B

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If the slope of tangent at point (x, y) of curve $y = f(x)$ is given by $\frac{2y}{x^2}$. If this curve passes through the centre of the circle $x^2 + y^2 - 2x - 2y = 0$. Then the curve is :

20 - 9407483

(A) $x \ln(y) = 2(x - 1)$

(B) $x^2 \ln(y) = 2(x - 1)$

(C) $x^2 \ln(y) = (x - 1)$

(D) $x \ln(y) = (x - 1)$

CORRECT OPTION: A

21 - 9407484

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

Which of the following is not a tautology.

(A) $p \rightarrow (p \vee q)$

(B) $(p \vee q) \rightarrow p$

(C) $(p \vee q) \rightarrow (p \wedge (\sim q))$

(D) $(p \vee \sim p)$

CORRECT OPTION: C

[© Watch Free Video Solution on Doubtnut](#)

22 - 9407485

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

If a, b, c are in G.P. and the equations

$$ax^2 + 2bx + c = 0 \text{ and } dx^2 + 2ex + f = 0 \text{ have}$$

a common root. Then

(A) d, e, f are in G.P.

(B) d, e, f are in A.P.

(C) $\frac{a}{d}, \frac{b}{e}, \frac{c}{f}$ are in A.P.

(D) $\frac{a}{d}, \frac{b}{e}, \frac{c}{f}$ are in H.P.

CORRECT OPTION: D

[© Watch Free Video Solution on Doubtnut](#)

23 - 9407486

**JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 -
MEMORY BASED - MATHS**

$$f(x) \text{ is defined as } f(x) = \begin{cases} |x| + [x] & -1 < x < 1 \\ x + |x| & 1 \leq x < 2 \\ |x|[x] & 2 \leq x < 3 \end{cases}$$

then the number of points of discontinuity of $f(x)$ is

(A) 2

(B) 3

(C) 0

(D) More than 4

CORRECT OPTION: A

[📺 Watch Free Video Solution on Doubtnut](#)

The advertisement features an orange background. On the left, a smartphone displays a math problem: "If the line segment joining the point A(a,b) and B(c,d) subtends an angle θ at the origin. Prove that $\cos \theta = \frac{ac+bd}{\sqrt{(a^2+b^2)(c^2+d^2)}}$ ". Below the phone is a dashed box with the text "Click Here to TYPE & ASK" and a green arrow pointing to the phone. On the right, another smartphone shows the app's interface with the text "Type your question" and a search bar containing "find the equation of tangent a". Below the search bar, several search results are visible, including "Find the equation of tangent to the curve 'x=a(th...'", "Find the equation of tangent to the curve 'x=a(th...'", "Find the equation of tangent to the curve 'y=sin^(-1...'", "If '3x+y-4' is a tangent to a circle whose center is ...", and "Find the equation of tangent to 'y=int_(x^2)^(x^3)(...". Above this phone is a dashed box with the text "Get Solutions as YOU TYPE" and a green arrow pointing to the phone. The Doubtnut logo is in the bottom left and bottom right corners.

 **doubt**nut
पढ़ना हुआ आसान

24 - 9407488

JEE MAINS 08 APRIL 2019 - PAPER 1 SHIFT 2 - MEMORY BASED - MATHS

Equation of plane passing through line of intersection of planes $x + y + z = 1$ and $2x + 3y + z = 5$ and perpendicular to the plane $x - y - z = 0$ is :

$$(A) \vec{r} \cdot (\hat{j} - \hat{k}) + 3 = 0$$

$$(B) \vec{r} \cdot (\hat{j} - \hat{k}) - 3 = 0$$

$$(C) \vec{r} \cdot (\hat{i} + \hat{k}) + 2 = 0$$

$$(D) \vec{r} \cdot (\hat{i} + \hat{k}) - 2 = 0$$

CORRECT OPTION: B

[📺 Watch Free Video Solution on Doubnut](#)

📲 Download Doubnut to Ask Any Math Question By just a click

📲 Get A Video Solution For Free in Seconds

📲 Doubnut Has More Than 1 Lakh Video Solutions

📲 Free Video Solutions of NCERT, RD Sharma, RS Aggarwal, Cengage (G.Tewani), Resonance DPP, Allen, Bansal, FIITJEE, Akash, Narayana, VidyaMandir

📲 Download Doubnut Today

Get Answer just with a click!

doubnut has more than 1 Lakh Video Solutions

Update the App now!

GET IT ON Google Play

The advertisement features two smartphones. The left smartphone displays a math problem: "x is a subset of y" with sets $x = \{1, 2, 3, 4, 5\}$ and $y = \{1, 2, 3, 4, 5, 6, 7\}$. Below the problem are tags like #SETS, #SUBSETS, and #MICROC... and a "Practice Questions" section. The right smartphone displays the "Library" section of the app, showing "NCERT Questions" with a "View All" button, and "Tips & Tricks" with a "View All" button. The central text box is yellow with a dashed border.