



# MATHS

## BOOKS - JEE MAINS PREVIOUS YEAR

### APPLICATION OF INTEGRALS

#### Others

1. The area enclosed between the curves

$y^2 = x$  and  $y = |x|$  is (1)  $\frac{2}{3}$  (2) 1 (3)  $\frac{1}{6}$  (4)  $\frac{1}{3}$



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2. The area of the plane region bounded by the curves  $x + 2y^2 = 0$  and  $x + 3y^2 = 1$  is equal to (1)  $\frac{5}{3}$  (2)  $\frac{1}{3}$  (3)  $\frac{2}{3}$  (4)  $\frac{4}{3}$

A.  $\frac{4}{3}$  sq units

B.  $\frac{5}{3}$  sq unit

C.  $\frac{1}{3}$  sq unit

D.  $\frac{2}{3}$  sq unit

**Answer: null**



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3. The area of the region bounded by the parabola  $(y^2)^2 = x$ , the tangent to the parabola at the point  $(2, 3)$  and the x-axis is (1) 3 (2) 6 (3) 9 (4) 12

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4. The area of the region enclosed by the curves  $y = x$ ,  $x = e$ ,  $y = \frac{1}{x}$  and the positive

x-axis is (1)  $\frac{1}{2}$  square units (2) 1 square units  
(3)  $\frac{3}{2}$  square units (4)  $\frac{5}{2}$  square units



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5. The area bounded between the parabolas

$x^2 = \frac{y}{4}$  and  $x^2 = 9y$  and the straight line

$y = 2$  is (1)  $20\sqrt{2}$  (2)  $\frac{10\sqrt{2}}{3}$  (3)  $\frac{20\sqrt{2}}{3}$  (4)

$10\sqrt{2}$



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6. The area (in square units) bounded by the curves  $y = \sqrt{x}$ ,  $2y - x + 3 = 0$ , x-axis, and lying in the first quadrant is



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7. Statement - I : The value of the integral

$\int_{\pi/6}^{\pi/3} \frac{dx}{1 + \sqrt{\tan x}}$  is equal to  $\frac{\pi}{6}$ . Statement -

II :  $\int_a^b f(x)dx = \int_a^b f(a + b - x)dx$ . (1)

Statement - I is True; Statement -II is true;

Statement-II is not a correct explanation for

Statement-I (2) Statement -I is True; Statement -II is False. (3) Statement -I is False; Statement -II is True (4) Statement -I is True; Statement -II is True; Statement-II is a correct explanation for Statement-I



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