MATHS

BOOKS - JEE MAINS PREVIOUS YEAR

ENGLISH

APPLICATION OF INTEGRALS

Others

1. The area enclosed between the curves $y^2 = x and y = |x|$ is (1) 2/3 (2) 1 (3) 1/6 (4) 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) $\frac{4}{3}$

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3. The area of the region bounded by the parabola $(y2)^2 = x1$, the tangent to the

parabola at the point (2, 3) and the xaxis is (1)

3 (2) 6 (3) 9 (4) 12

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4. The area bounded by the curves $y = \cos x and y = \sin x$ between the cordinates $x = 0 and x = \frac{3\pi}{2}$ is (1) $4\sqrt{2} - 2$ (2) $4\sqrt{21}$ (3) $4\sqrt{2} + 1$ (4) $4\sqrt{22}$

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5. Let I be the purchase value of an equipment and V(t) be the value after it has been used for t years. The value V(t) depreciates at a rate given by differential equation $\frac{dV(t)}{dt}$=-k(T-t) , where $k > 0$ is a constant and T is the total life in years of the equipment. Then the scrap value V(T) of the equipment is : (1) $T^2 - \frac{1}{k}$ (2) $I - \frac{kT^2}{2}$ (3) $I - \frac{k(T-t)^2}{2}$ (4) e^{-kT}

A.

B. null

C. null

D. null

Answer: null

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6. 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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7. The area bounded between the parabolas $x^2 = \frac{y}{4} \text{and} x^2 = 9y$ 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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8. 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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9. 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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