



MATHS

BOOKS - CENGAGE

AREA UNDER CURVES

Question Bank

1. The area of the region (s) enclosed by the curves $y = x^2$ and $y = \sqrt{|x|}$ is



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2. The area (in sq. units) bounded by the curves $y = x(x - 3)^2$ and $y = x$ is



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3. The area of the region enclosed between the curves $x = y^2 - 1$ and $x = |x|\sqrt{1 - y^2}$ is



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4. The ratio in which the line $x - 1 = 0$ divides the area bounded by the curves $2x + 1 = \sqrt{4y + 1}$, $y = x$ and $y = 2$ is



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5. The area enclosed by $f(x) = 12 + ax - x^2$ coordinates axes and the coordinates at $x = 3$ ($f(3) > 0$) is 45 sq. units. If m and n are the x-axis intercepts of the graph of $y=f(x)$, then the value of $(m+n+a)$ is ___.



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6. The area bounded by the curve $y = x^2 + 2x + 1$ and tangent at $(1, 4)$ and y -axis is



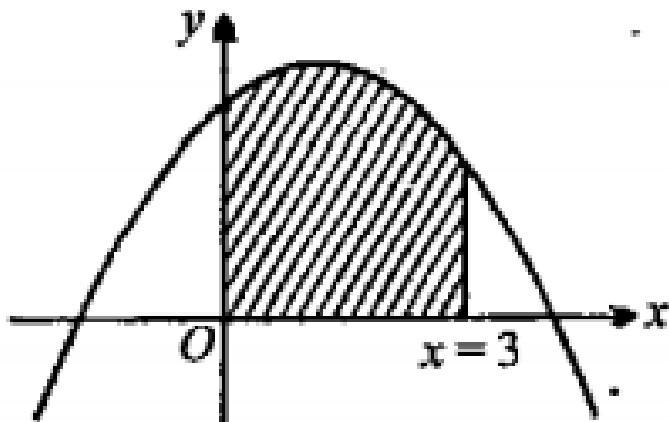
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7. If the area enclosed between

$$f(x) = \min(\cos^{-1}(\cos x), \cot^{-1}(\cot x))$$

and x -axis in $x \in (\pi, 2\pi)$ is $\frac{\pi^2}{k}$ where $k \in N$,

then k is equal to



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8. 'If the area bounded by the graph of $y = xe^{-ax}$ ($a > 0$) and the abscissa axis is $\frac{1}{9}$

then the value of ' a ' is equal to



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9. The area of the quadrilateral with its vertices at the foci of the conics

$$9x^2 - 16y^2 - 18x + 32y - 23 = 0 \quad \text{and}$$

$$25x^2 + 9y^2 - 50x - 18y + 33 = 0, \text{ is}$$



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10. $y = f(x)$ is a function which satisfies

(i) $f(0) = 0$

(ii) $f''(x) = f'(x)$ and

(iii) $f'(0) = 1$ then the area bounded by the graph of $y = f(x)$, the lines $x = 0$, $x - 1 = 0$ and $y + 1 = 0$, is



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