

Application Of Integrals

TEST - 01

Q01. Determine the area of a circular medal of radius r units having its centre located at the origin.

Q02. Find the area cut off from the parabola $3x^2 = 4y$ by the line $2y = 3x + 12$.

Q03. Using integrals, find the ar(ABC) if $A(2, 0)$, $B(4, 5)$ and $C(6, 3)$.

Q04. Prove that the area enclosed by $y^2 = 4ax$ and $x^2 = 4ay$ is $\frac{16}{3}a^2$ square units.

Q05. Evaluate the area bounded by the curves $4y = |4 - x^2|$, $x^2 + y^2 = 25$ and $x = 0$ above the x -axis.

Q06. Find the area of region bounded by the curves $y = x - 1$ and $(y - 1)^2 = 4(x + 1)$.

Q07. Make a rough sketch of the region $y = 1 + |x + 1|$, $|x| = 3$, $y = 0$. Hence use integration to find the area bounded by these curves.

OR Find the area of the region $\left\{ (x, y) : x^2 + y^2 \leq 1 \leq x + \frac{y}{2} \right\}$.

Q08. Sketch the graph of $y = |x + 1|$. Evaluate $\int_{-4}^2 |x + 1| dx$. What does the value of this integral represent on the graph?

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Answers of Applications of Integrals

TEST 01

Q01. πr^2 sq.units

Q02. 27sq.units

Q03. 7 sq.units

Q05. See the diagram of this question in Mathematicia Vol.1 : $25 \sin^{-1} \left(\frac{4}{5} \right) + 4$ sq.units

Q06. $\frac{64}{3}$ sq.units

Q07. 16sq.units or $\left(\frac{\pi}{4} - \frac{2}{5} - \frac{1}{2} \sin^{-1} \frac{3}{5} \right)$ sq.units

Q08. 9 sq.units, this value represent the area bounded by the curve $y = |x + 1|$ in the given intervals .

If you've any query regarding any question in the test, please write to me on theopgupta@gmail.com

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