

CLASS 12

MATHEMATICS

NCERT SOLUTIONS

NCERT Solutions for Class 12 Mathematics Chapter 8: Applications of Integrals – Free PDF Download

Chapter 8 of Class 12 Maths is Applications of Integrals. It uses definite integrals to compute the area under curves, between curves, and bounded by circles/parabolas/ellipses. These Class 12 Mathematics Chapter 8 solutions are also useful as quick revision notes before exams.

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Class 12 Mathematics Chapter 8 – Notes and Extra Questions

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Area Under a Curve

The area bounded by $y=f(x)$, the x -axis, and the lines $x=a$, $x=b$ is $\text{Area}=\int_a^b |f(x)|dx$ (the modulus ensures a positive area even if the curve dips below the axis).

Area Between Two Curves

If $f(x)\geq g(x)$ on $[a,b]$, the area between the curves is $\int_a^b [f(x)-g(x)]dx$. Intersection points of the curves are found by solving $f(x)=g(x)$ to determine the limits.

Area of Standard Curves

Circle $x^2+y^2=a^2$: full area= πa^2 , computed via $4\int_0^a \sqrt{a^2-x^2}dx$ for the first quadrant, multiplied by 4. **Parabola** $y^2=4ax$ and **ellipse** $x^2/a^2+y^2/b^2=1$ areas are computed similarly using integration with symmetry.

Sketching Regions

Before integrating, sketch the curves to correctly identify which function is on top/bottom (or left/right, for integration with respect to y) and determine the correct limits of integration.

Integration with Respect to y

When a region is more naturally described in terms of y (e.g. $x=g(y)$), the area formula becomes $\int_c^d x dy=\int_c^d g(y)dy$.

Class 12 Mathematics Chapter 8 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the [Class 12 Mathematics Chapter 8 Extra Questions](#) and [Class 12 Mathematics Chapter 8 Revision Notes](#) for quick revision and extra practice.

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#)

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Quick revision: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#)