

National Institute of Open Schooling (NIOS)
Senior Secondary Course
Lesson –31: Definite integrals
Worksheet -31

1. Discuss fundamental theorem of integral calculus with examples

2. Evaluate $\int_0^{\frac{\pi}{2}} \frac{x}{\sin x + \cos x} .dx$

3. Evaluate $\int_0^{\frac{\pi}{2}} \frac{\cos^2 x}{1+3\sin^2 x}$

4. Describe different properties of definite integrate with examples.

5. Using integration, find the area of the region bounded by the ellipse $\frac{x^2}{36} + \frac{y^2}{25} = 1$

6. Using integration, find the area of the region bounded by the circle $x^2 + y^2 = 9$

7. Using integration, find the area of the region bounded by the parabola $x^2 = 10y$ and line $y = 2$

8. Using integration, find the area of the triangle ABC. The vertices are A (2, 0), B (4, 5) and C (6, 3).

9. Find the area bounded by the circle $x^2 + y^2 = 16$ and the line $\sqrt{3}y = x$ in the first quadrant using integration.

10. Calculate the area under the curve $y = 2\sqrt{x}$ included between the lines $x = 0$ and $x = 1$.