

Trig substitutions.

Warm Up Questions :

1.

$$\int \frac{\sqrt{9-x^2}}{x^2} dx$$

2. Find the area of the ellipse:

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1.$$

Intermediate questions:)

3.

$$\int \frac{dx}{\sqrt{x^2 + a^2}}$$

4.

$$\int \sqrt{x^2 + a^2} dx$$

5.

$$\int_0^{\frac{3\sqrt{3}}{2}} \frac{x^3}{(4x^2 + 9)^{3/2}} dx$$