

3D Integrating with Trig Substitutions

1.

$$\int \frac{1}{\sqrt{a^2 - x^2}} dx$$

2. Find the integral:

$$\int \frac{1}{a^2 + x^2} dx$$

A reminder of the formula book

$$\frac{1}{\sqrt{a^2 - x^2}}$$

$$\arcsin\left(\frac{x}{a}\right) \quad (|x| < a)$$

$$\frac{1}{a^2 + x^2}$$

$$\frac{1}{a} \arctan\left(\frac{x}{a}\right)$$

3. Find

$$\int \frac{4}{5 + x^2} dx$$

4. Find

$$\int \frac{1}{25 + 9x^2} dx$$

5. Evaluate the following, leaving your answer in terms of π .

$$\int_{-\frac{\sqrt{3}}{4}}^{\frac{\sqrt{3}}{4}} \frac{1}{\sqrt{3-4x^2}} dx$$

6. Find

$$\int \frac{x + 4}{\sqrt{1 - 4x^2}} dx$$

