

5.9 – u -Substitution, Part III

General Inverse Trigonometric Functions

$$\int \frac{du}{\sqrt{a^2 - u^2}} = \sin^{-1}\left(\frac{u}{a}\right) + C$$

$$\int \frac{du}{a^2 + u^2} = \frac{1}{a} \arctan\left(\frac{u}{a}\right) + C$$

Integrate.

1. $\int \frac{3x}{\sqrt{16 - x^4}} dx$

2. $\int \frac{e^x dx}{2 + e^{2x}}$

$$3. \int_0^2 (\sqrt{t} - t3^{t^2}) dt$$

$$4. \int \frac{x^5}{1+x^6} dx$$

$$5. \int \frac{x^2}{1+x^6} dx$$

$$6. \int \frac{t dt}{\sqrt{5-t^2}}$$

$$7. \int \frac{dt}{\sqrt{5-t^2}}$$

$$8. \int \frac{x^3 - x}{9 + x^4} dx$$