

5.7 Inverse Trig functions and Integration

Thm. Let u be a diff'ble function of x and let a be a positive constant.

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

If any are
negative, it is
the cofunction.

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

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

$$\text{ex. } \int \frac{dx}{\sqrt{4-x^2}}$$

$$\text{ex. } \int \frac{\cos x}{2 + \sin^2 x} dx =$$

$$\text{ex. } \int \frac{dx}{x \sqrt{4x^2 - 9}}$$

$$\text{ex. } \int \frac{dx}{\sqrt{e^{2x} - 1}}$$

ex. $\int \frac{dx}{x^2-4x+7}$

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

ex. $\int \frac{1}{\sqrt{3x - x^2}} dx =$

ex. $\int \frac{2x + 7}{x^2 + 2x + 5} dx =$

$$\text{ex. } \int \frac{x-3}{x^2+1} dx =$$