

## Formula Sheet

$$\sin^{-1} : \text{domain}=[-1, 1]; \text{range}=[-\pi/2, \pi/2],$$

$$\cos^{-1} : \text{domain}=[-1, 1]; \text{range}=[0, \pi],$$

$$\tan^{-1} : \text{domain}=(-\infty, \infty); \text{range}=(-\pi/2, \pi/2),$$

$$\sec^{-1} : \text{domain}=(-\infty, -1] \cup [1, \infty); \text{range}=[0, \pi/2) \cup (\pi/2, \pi],$$

$$\begin{aligned} \int \frac{1}{\sqrt{a^2 - x^2}} dx &= \sin^{-1} \left( \frac{x}{a} \right) + C, \\ &= C - \cos^{-1} \left( \frac{x}{a} \right), \end{aligned}$$

$$\int \frac{1}{a^2 + x^2} dx = \frac{1}{a} \tan^{-1} \left( \frac{x}{a} \right) + C,$$

$$\int \frac{1}{x\sqrt{x^2 - a^2}} dx = \frac{1}{a} \sec^{-1} \left| \frac{x}{a} \right| + C.$$