

**Trigonometry formulas**

$$\begin{aligned} \sin^2(x) + \cos^2(x) &= 1 \\ \tan^2(x) + 1 &= \sec^2(x) \\ 1 + \cot^2(x) &= \csc^2(x) \\ \sin(a + b) &= \sin(a) \cos(b) + \cos(a) \sin(b) \\ \cos(a + b) &= \cos(a) \cos(b) - \sin(a) \sin(b) \\ \sin(2x) &= 2 \sin(x) \cos(x) \\ \cos(2x) &= \cos^2(x) - \sin^2(x) \end{aligned}$$

**Derivatives and integrals**

$$\frac{d}{dx} x^n \text{ (} n \text{ is a nonzero constant)} =$$

$$\frac{d}{dx} e^x =$$

$$\frac{d}{dx} \ln |x| =$$

$$\frac{d}{dx} a^x \text{ (} a \text{ is a nonzero constant)} =$$

$$\frac{d}{dx} \sin x =$$

$$\frac{d}{dx} \cos x =$$

$$\frac{d}{dx} \tan x =$$

$$\frac{d}{dx} \sec x =$$

$$\frac{d}{dx} \cot x =$$

$$\frac{d}{dx} \csc x =$$

$$\frac{d}{dx} \arcsin x =$$

$$\frac{d}{dx} \arctan x =$$

$$\frac{d}{dx} \operatorname{arcsec} x =$$

$$\int \sec(x) dx =$$

$$\int \tan(x) dx =$$

$$\int \sin^2(x) dx =$$

$$\int \cos^2(x) dx =$$