

Trigonometric Identities

$$\sin \theta \csc \theta = 1$$

$$\cos \theta \sec \theta = 1$$

$$\tan \theta \cot \theta = 1$$

$$\sin^2 x + \cos^2 x = 1$$

$$1 + \tan^2 x = \sec^2 x$$

$$1 + \cot^2 x = \csc^2 x$$

$$\tan x = \frac{\sin x}{\cos x}$$

$$\cot x = \frac{\cos x}{\sin x}$$

Length of Intercepted Arc: $s = r\theta$, θ in radians

Negative Number Identities

$$\sin(-\theta) = -\sin \theta$$

$$\cos(-\theta) = \cos \theta$$

$$\tan(-\theta) = -\tan \theta$$

Co-function Identities

$$\sin \theta = \cos(90^\circ - \theta)$$

$$\cos \theta = \sin(90^\circ - \theta)$$

$$\tan \theta = \cot(90^\circ - \theta)$$

Inverse Trig Functions

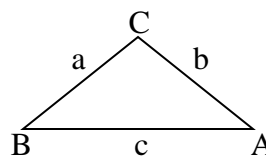
$$-\frac{\pi}{2} \leq \sin^{-1} x \leq \frac{\pi}{2}$$

$$0 \leq \cos^{-1} x \leq \pi$$

$$-\frac{\pi}{2} < \tan^{-1} x < \frac{\pi}{2}$$

Compound Interest Formula: $A = P\left(1 + \frac{r}{n}\right)^{nt}$

Continuous Compounding Formula: $A = Pe^{rt}$



Law of Cosines

$$a^2 = b^2 + c^2 - 2bc \cos A$$

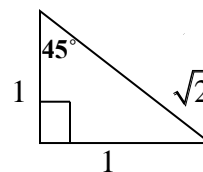
$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

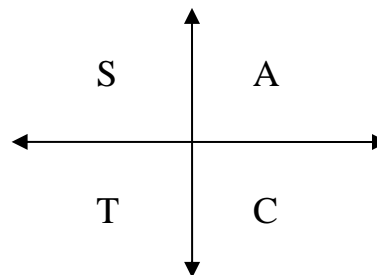
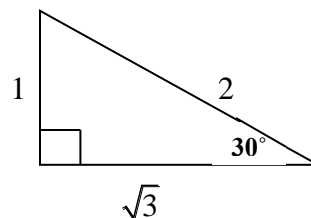
Law of Sines

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

45° – 45° – 90° Right Triangle



30° – 60° – 90° Right Triangle



Exponential and Logarithmic Equations

$$a^k = N \Leftrightarrow \text{Log}_a N = k$$

Properties of Logarithms

$$\text{Log}_a MN = \text{Log}_a M + \text{Log}_a N$$

$$\text{Log}_a \frac{M}{N} = \text{Log}_a M - \text{Log}_a N$$

$$\text{Log}_a M^r = r \text{Log}_a M$$

$$\text{Log}_a a = 1$$

$$\text{Log}_a 1 = 0$$

$$\text{Log}_e e = \ln e = 1$$

