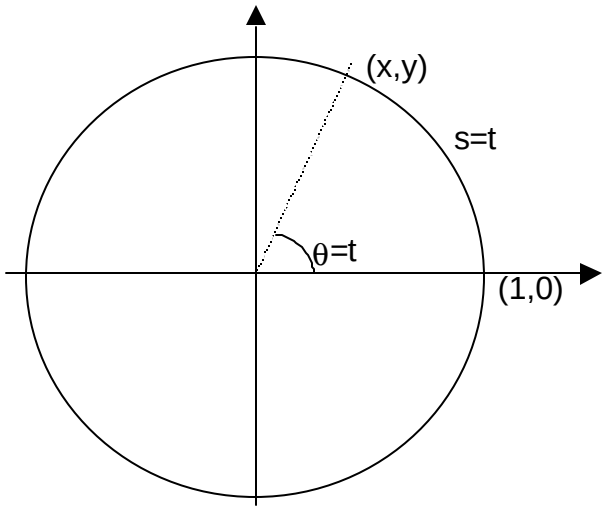
Formulas from trigonometry

Trigonometric Functions of real numbers

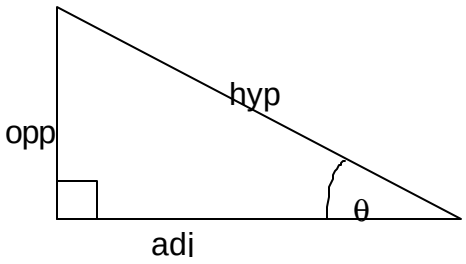


$\sin t = y$ $\quad$ $\csc t = \frac{1}{y}$

$\cos t = x$ $\quad$ $\sec t = \frac{1}{x}$

$\tan t = \frac{y}{x}$ $\quad$ $\cot t = \frac{x}{y}$

Trigonometric Functions of acute angles



$\sin q = \frac{opp}{hyp}$ $\quad$ $\csc q = \frac{hyp}{opp}$

$\cos q = \frac{adj}{hyp}$ $\quad$ $\sec q = \frac{hyp}{adj}$

$\tan q = \frac{opp}{adj}$ $\quad$ $\cot q = \frac{adj}{opp}$

Fundamental Identities

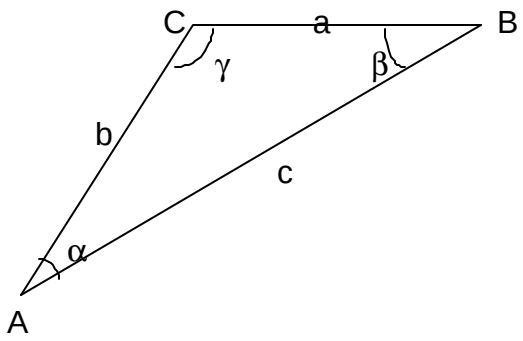
$\csc t = \frac{1}{\sin t}$ $\quad$ $\sin^2 t + \cos^2 t = 1$

$\sec t = \frac{1}{\cos t}$ $\quad$ $1 + \tan^2 t = \sec^2 t$

$\tan t = \frac{\sin t}{\cos t}$ $\quad$ $1 + \cot^2 t = \csc^2 t$

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

Oblique Triangle



Law of Sines

$$\frac{\sin a}{a} = \frac{\sin b}{b} = \frac{\sin g}{c}$$

Law of Cosines

$$a^2 = b^2 + c^2 - 2bc\ \cos a$$
$$b^2 = a^2 + c^2 - 2ac\ \cos b$$
$$c^2 = a^2 + b^2 - 2ab\ \cos g$$

Addition Formulas

$$\sin(u+v) = \sin u \cos v + \cos u \sin v$$
$$\cos(u+v) = \cos u \cos v - \sin u \sin v$$
$$\tan(u+v) = \frac{\tan u + \tan v}{1 - \tan u \tan v}$$

Subtraction Formulas

$$\sin(u-v) = \sin u \cos v - \cos u \sin v$$
$$\cos(u-v) = \cos u \cos v + \sin u \sin v$$
$$\tan(u-v) = \frac{\tan u - \tan v}{1 + \tan u \tan v}$$

Half-Angle Formulas

$$\sin\frac{u}{2} = \pm\sqrt{\frac{1-\cos u}{2}}$$
$$\cos\frac{u}{s} = \pm\sqrt{\frac{1+\cos u}{2}}$$
$$\tan\frac{u}{2} = \frac{1-\cos u}{\sin u} = \frac{\sin u}{1+\cos u}$$

Double-Angle Formulas

$$\sin 2u = 2\sin u \cos u$$
$$\cos 2u = \cos^2 u - \sin^2 u$$
$$= 1 - 2\sin^2 u$$
$$= 2\cos^2 u - 1$$
$$\tan 2u = \frac{2\tan u}{1 - \tan^2 u}$$

[excerpts from "Quick Reference Card", The Swokowski-Cole Series, PWS-Kent Pub. Co.]