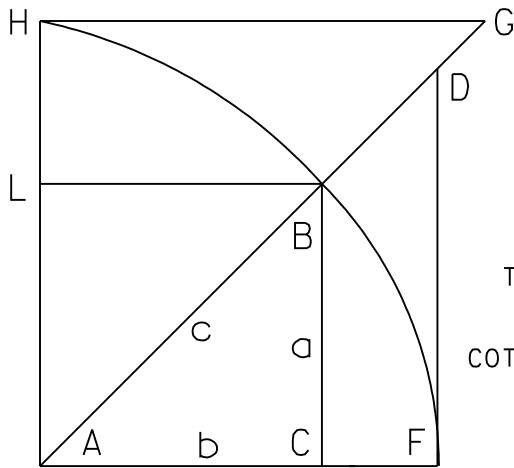


TRIGONOMETRIC FUNCTIONS



$$\begin{aligned} \text{RADIUS } AF &= 1 \\ &= \sin^2 A + \cos^2 A = \sin A \operatorname{cosec} A \\ &= \cos A \operatorname{sec} A = \tan A \cot A \end{aligned}$$

$$\operatorname{SINE} A = \frac{\cos A}{\cot A} = \frac{1}{\operatorname{cosec} A} = \cos A \tan A = \sqrt{1 - \cos^2 A} = BC$$

$$\operatorname{COSINE} A = \frac{\sin A}{\tan A} = \frac{1}{\operatorname{sec} A} = \sin A \cot A = \sqrt{1 - \sin^2 A} = AC$$

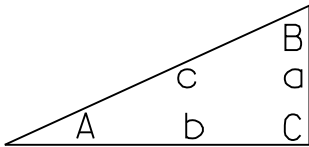
$$\operatorname{TANGENT} A = \frac{\sin A}{\cos A} = \frac{1}{\cot A} = \sin A \operatorname{sec} A = FD$$

$$\operatorname{COTANGENT} A = \frac{\cos A}{\sin A} = \frac{1}{\tan A} = \cos A \operatorname{cosec} A = HG$$

$$\operatorname{SECANT} A = \frac{\tan A}{\sin A} = \frac{1}{\cos A} = AD$$

$$\operatorname{COSECANT} A = \frac{\cot A}{\cos A} = \frac{1}{\sin A} = AG$$

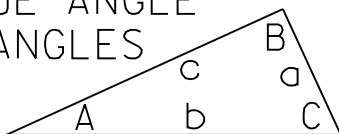
RIGHT ANGLE TRIANGLES



$$\begin{aligned} a^2 &= c^2 - b^2 \\ b^2 &= c^2 - a^2 \\ c^2 &= a^2 + b^2 \end{aligned}$$

KNOWN	REQUIRED					
	A	B	a	b	c	AREA
a, b	$\tan A = \frac{a}{b}$	$\tan B = \frac{a}{b}$			$\sqrt{a^2 + b^2}$	$\frac{ab}{2}$
a, c	$\sin A = \frac{a}{c}$	$\cos B = \frac{a}{c}$		$\sqrt{c^2 - a^2}$		$\frac{a\sqrt{c^2 - a^2}}{2}$
A, a		$90^\circ - A$		$a \cot A$	$\frac{a}{\sin A}$	$\frac{a^2 \cot A}{2}$
A, b		$90^\circ - A$	$b \tan A$		$\frac{b}{\cos A}$	$\frac{b^2 \tan A}{2}$
A, c		$90^\circ - A$	$c \sin A$	$c \cos A$		$\frac{c^2 \sin 2A}{4}$

OBLIQUE ANGLE TRIANGLES



$$\begin{aligned} s &= \frac{a+b+c}{2} \\ K &= \sqrt{\frac{(s-a)(s-b)(s-c)}{s}} \end{aligned}$$

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

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

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

KNOWN	REQUIRED					
	A	B	C	b	c	AREA
a, b, c	$\tan \frac{1}{2} A = \frac{k}{s-a}$	$\tan \frac{1}{2} B = \frac{k}{s-b}$	$\tan \frac{1}{2} C = \frac{k}{s-c}$			$\sqrt{s(s-a)(s-b)(s-c)}$
a, A, B			$180^\circ - (A+B)$	$\frac{a \sin B}{\sin A}$	$\frac{a \sin C}{\sin A}$	
a, b, A		$\sin A = \frac{b \sin A}{a}$			$\frac{b \sin C}{\sin B}$	
a, b, C	$\tan A = \frac{a \sin C}{b-a \cos C}$				$\sqrt{a^2 + b^2 - 2ab \cos C}$	$\frac{ab \sin C}{2}$

TRIGONOMETRIC FORMULAS

FIGURE 1 - 6