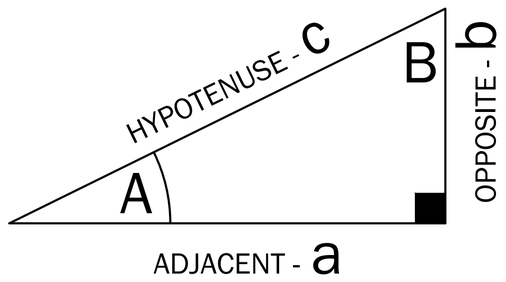
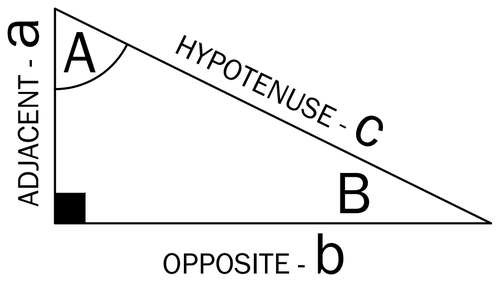


TRIGONOMETRY

TABLE FOR SOLUTION OF RIGHT TRIANGLES



SINE RULE - SOH	COSINE RULE - CAH	TANGENT RULE - TOA
$\text{SINE} = \frac{\text{OPPOSITE}}{\text{HYPOTENUSE}}$	$\text{COSINE} = \frac{\text{ADJACENT}}{\text{HYPOTENUSE}}$	$\text{TANGENT} = \frac{\text{OPPOSITE}}{\text{ADJACENT}}$

KNOWN VALUES	UNKNOWN SIDE a	UNKNOWN SIDE b	UNKNOWN SIDE c	UNKNOWN ANGLE A	UNKNOWN ANGLE B
a & b			$\sqrt{a^2 + b^2} = c$	$\frac{b}{a}$ = inv tan A	$\frac{a}{b}$ = inv tan B
b & c	$\sqrt{c^2 - b^2} = a$			$\frac{b}{c}$ = inv sin A	$\frac{b}{c}$ = inv cos B
a & c		$\sqrt{a^2 - c^2} = b$		$\frac{a}{c}$ = inv cos A	$\frac{a}{c}$ = inv sin B
a & A		a (tan A) = b	$\frac{a}{\cos A} = c$		90° - A = B
a & B		a (tan B) = b	$\frac{a}{\sin B} = c$	90° - B = A	
b & A	b (tan A) = a		$\frac{b}{\sin A} = c$		90° - A = B
b & B	b (tan B) = a		$\frac{b}{\cos B} = c$	90° - B = A	
c & A	c (cos A) = a	c (sin A) = b			90° - A = B
c & B	c (sin B) = a	c (cos B) = b		90° - B = A	

CALCULATION NOTES:

There are 4 easy ways to calculate the trigonometric ratios of sine, cosine and tangent and their corresponding inverses arcsine, arccosine and arctangent.

1. Use lookup tables such as those found in "Machinery's Handbook".
2. Use calculators in Degrees mode where the SIN of 30° is 0.5 and the INV (or 2ND key) of a SIN value of 0.5 is 30°.
3. Use online calculators found on the Internet.
4. Use spreadsheet programs such as Microsoft Excel ® formulas and their inverses (30° is used for example) below:

=SIN (RADIANS(30))	=COS (RADIANS(30))	=TAN (RADIANS(30))
=DEGREES(ASIN(0.5))	=DEGREES(ACOS(0.866025404))	=DEGREES(ATAN(0.5773503))

$$\text{TAN}\,\theta = \frac{\text{SIN}\,\theta}{\text{COS}\,\theta}$$

* The area of a right triangle is easily calculated when thought of as half a parallelogram.

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