

Complementary Angles

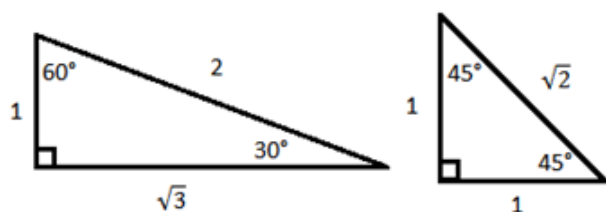
$$\sin \theta = \cos(90 - \theta) \qquad \tan \theta = \frac{\sin \theta}{\cos \theta}$$

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

Exact Ratios of 30°, 45° and 60°

	30°	45°	60°
sin	$\sin 30 = \frac{1}{2}$	$\sin 45 = \frac{1}{\sqrt{2}}$	$\sin 60 = \frac{\sqrt{3}}{2}$
cos	$\cos 30 = \frac{\sqrt{3}}{2}$	$\cos 45 = \frac{1}{\sqrt{2}}$	$\cos 60 = \frac{1}{2}$
tan	$\tan 30 = \frac{1}{\sqrt{3}}$	$\tan 45 = 1$	$\tan 60 = \sqrt{3}$

REMINDER



Trigonometric Ratios for bigger angles

SECOND QUADRANT

$$\sin(180 - \theta) = \sin \theta$$

$$\cos(180 - \theta) = -\cos \theta$$

$$\tan(180 - \theta) = -\tan \theta$$

THIRD QUADRANT

$$\sin(270 - \theta) = -\sin \theta$$

$$\cos(270 - \theta) = -\cos \theta$$

$$\tan(270 - \theta) = \tan \theta$$

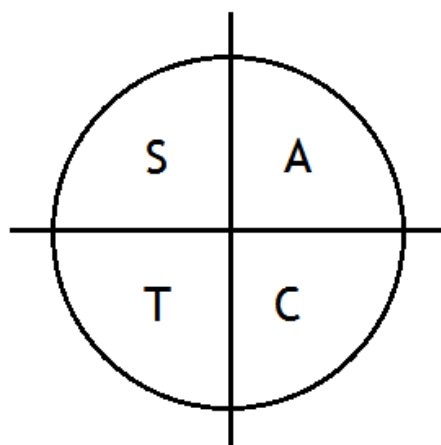
FOURTH QUADRANT

$$\sin(360 - \theta) = -\sin \theta$$

$$\cos(360 - \theta) = \cos \theta$$

$$\tan(360 - \theta) = -\tan \theta$$

ALL STATIONS TO CENTRAL



Note:

- A = all positive
- S = sine positive
- T = tan positive
- C = cos positive

Sine Rule

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

a is the side **opposite** to the angle, **A**.

Cosine Rule

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

Or, rearranged:

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

Area of a Triangle

$$A = \frac{1}{2}ab \sin C$$