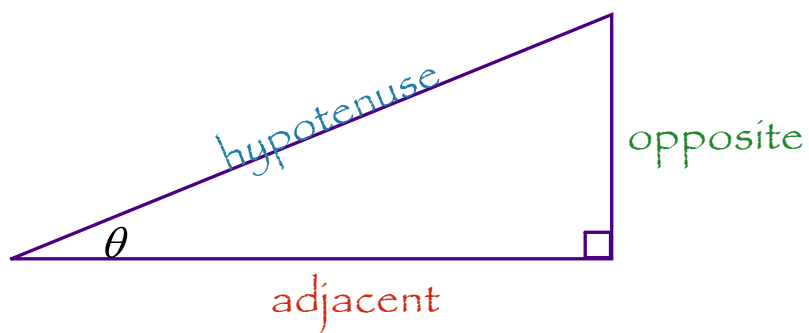


Trigonometry

Recall:

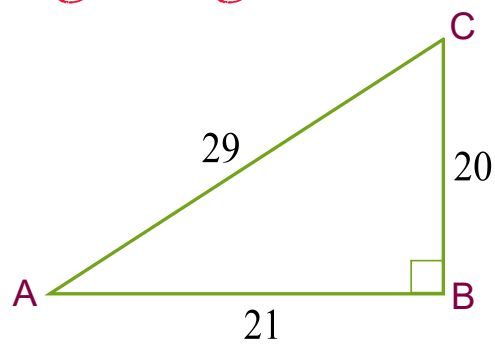


$$\sin \theta = \frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\tan \theta = \frac{\textit{opposite}}{\textit{adjacent}}$$

$$\cos \theta = \frac{\textit{adjacent}}{\textit{hypotenuse}}$$

Given the following triangle,



determine ...

$$\sin A$$

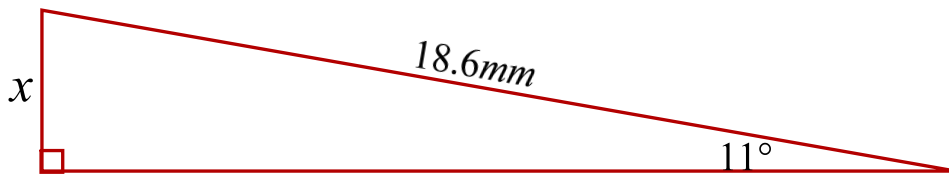
$$\cos A$$

$$\tan A$$

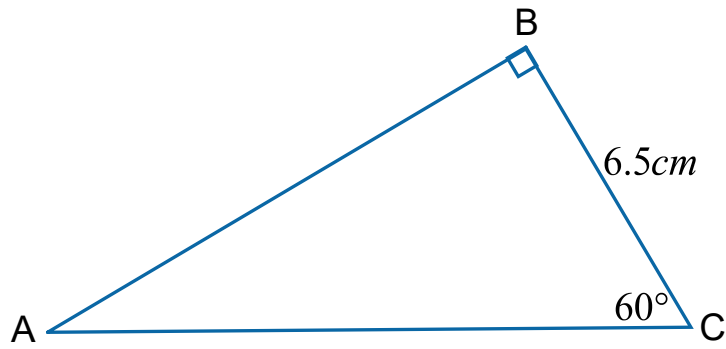
$$\cos C$$

$$\tan C$$

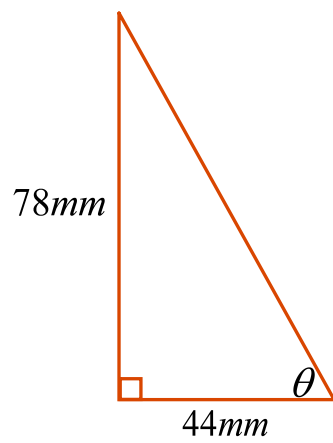
Finding a Missing Side

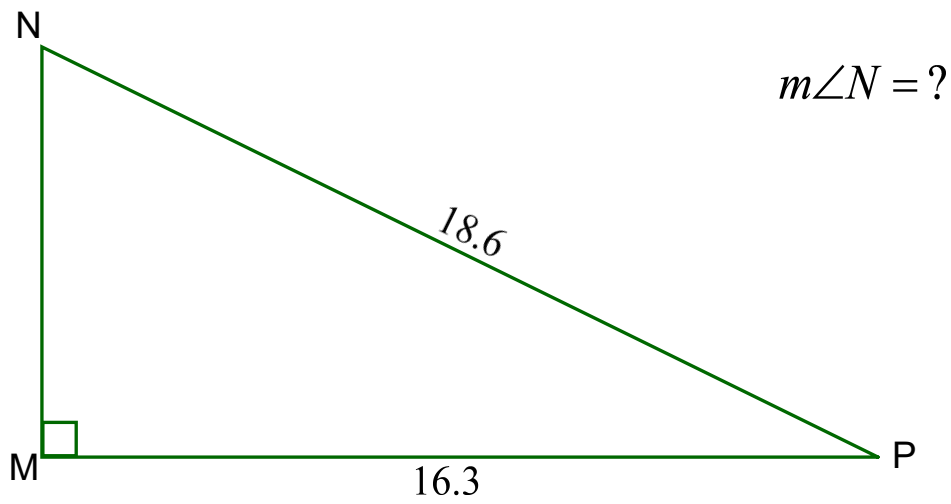


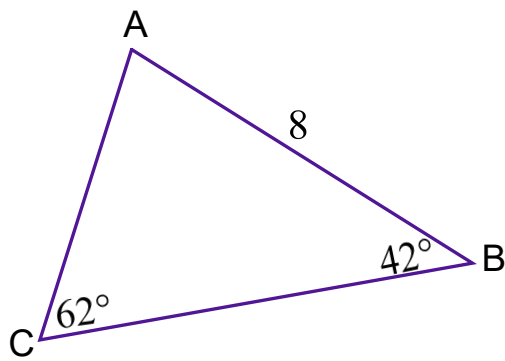
$$m\overline{AC} = ?$$



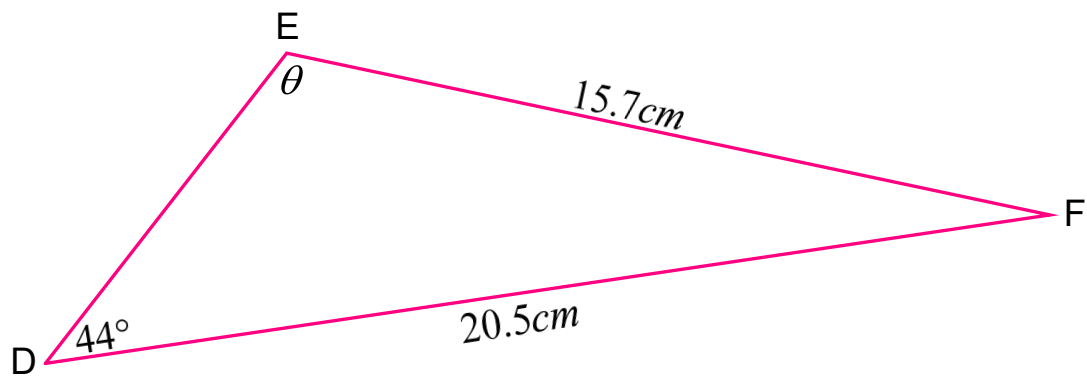
Finding a Missing Angle

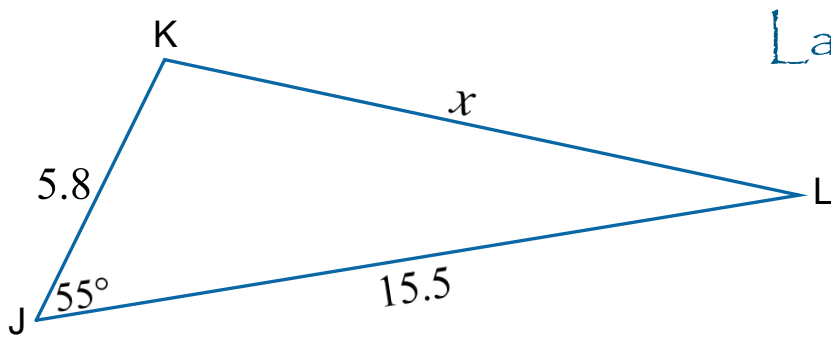




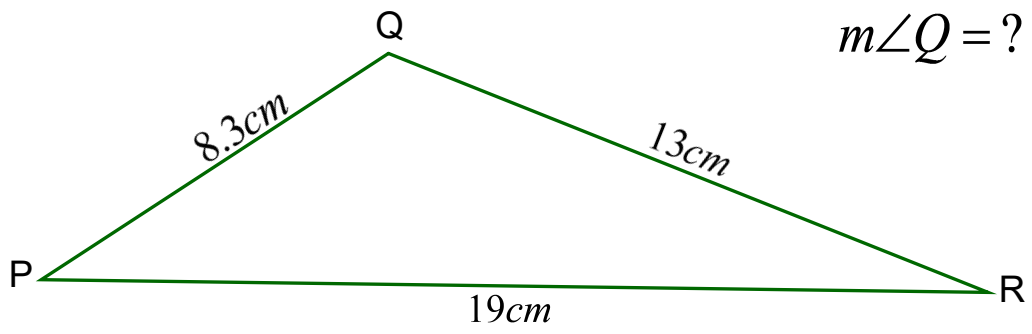


Law of Sines





Law of Cosines



There are 3 other ratios: the reciprocals of sine, cosine and tangent.

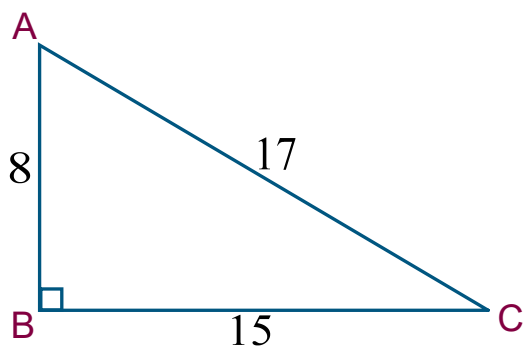
$$\text{Secant: } \sec \theta = \frac{1}{\cos \theta} = \frac{\textit{hypotenuse}}{\textit{adjacent}}$$

$$\text{Cosecant: } \text{csc } \theta = \frac{1}{\sin \theta} = \frac{\textit{hypotenuse}}{\textit{opposite}}$$

(cosec θ)

$$\text{Cotangent: } \cot \theta = \frac{1}{\tan \theta} = \frac{\textit{adjacent}}{\textit{opposite}}$$

Given the following triangle,



determine ...

$\csc A$

$\sec A$

$\cot C$

Example: Determine the value of x .

a) $\csc 20^\circ = \frac{x}{2}$

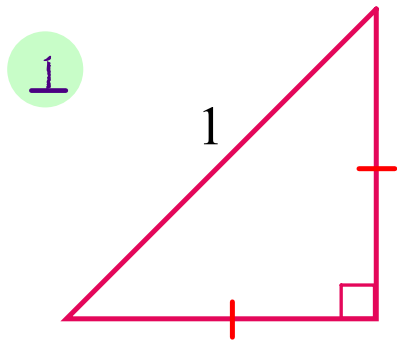
c) $\sec x = 2$

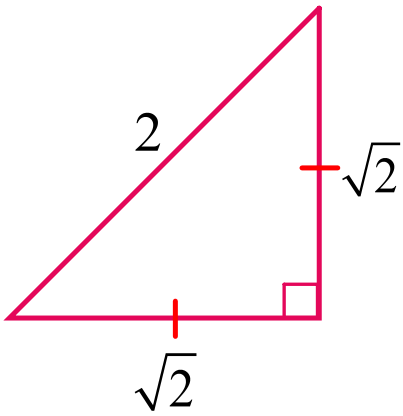
b) $\cot 50^\circ = \frac{24}{x}$

d) $\csc x = \sqrt{2}$

Remarkable Angles

There are three remarkable angles, for which we can calculate the exact values of their trigonometric ratios.



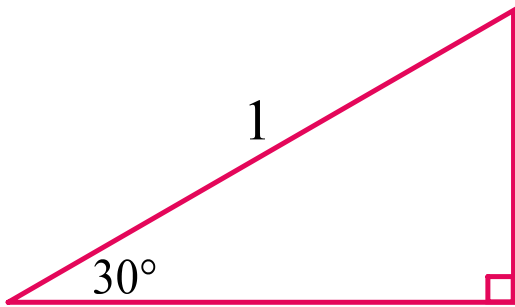


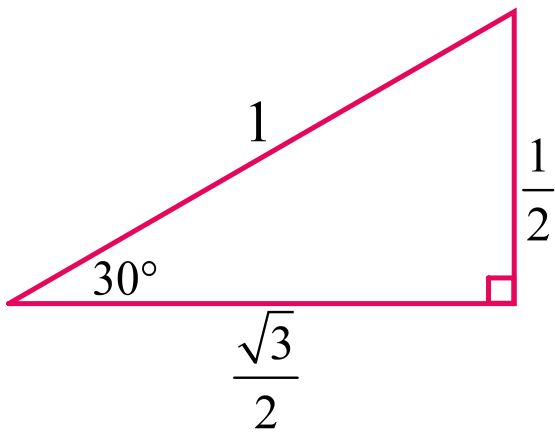
$$\sin 45^\circ =$$

$$\cos 45^\circ =$$

$$\tan 45^\circ =$$

2

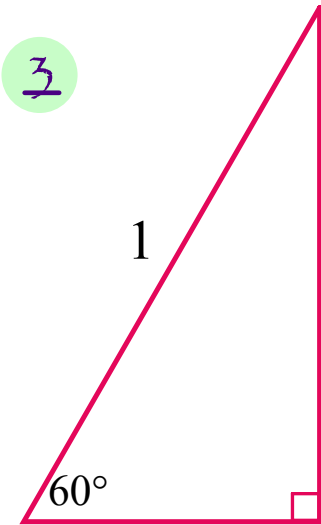


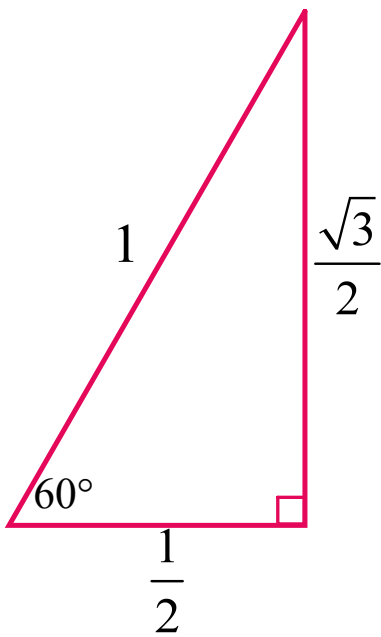


$$\sin 30^\circ =$$

$$\cos 30^\circ =$$

$$\tan 30^\circ =$$





$$\sin 60^\circ =$$

$$\cos 60^\circ =$$

$$\tan 60^\circ =$$

Determine the exact values of...

	30°	45°	60°
$\sec x$			
$\csc x$			
$\cot x$			