**L1 – Trig Review and Special Angles**
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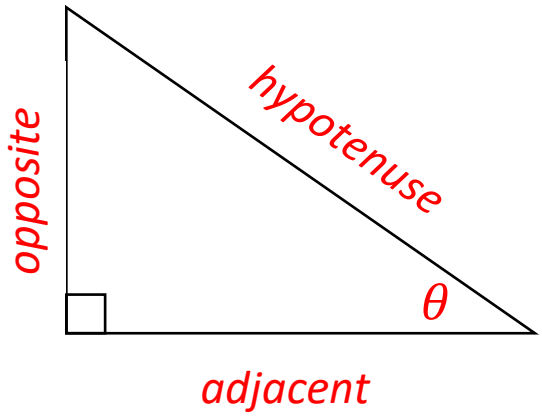
## Part 1: Trig Review

Your main takeaway from grade 10 trigonometry should have been:

If we know a right triangle has an angle of $\theta$, all other right triangles with an angle of $\theta$ are _____ and therefore have _____ ratios of corresponding sides.

There are three primary trigonometric ratios for right angled triangles. _____, _____, and _____.




$\sin\theta =$

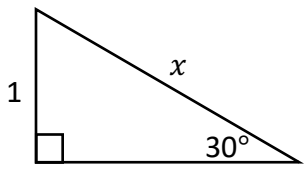
$\cos\theta =$

$\tan\theta =$

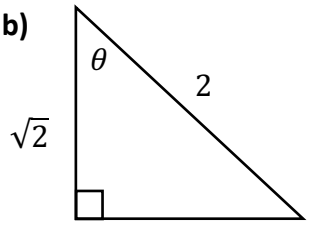
**Acronym:** SOHCAHTOA $\quad S\frac{O}{H} \quad C\frac{A}{H} \quad T\frac{O}{A}$

**Example 1:** Find the indicated missing side or angle of each triangle

**a)**




**b)**

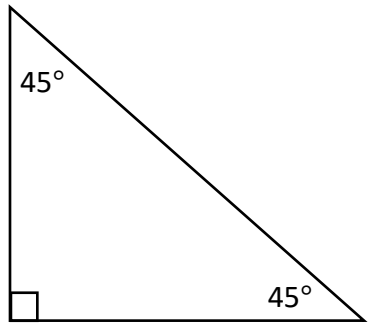


**Part 2: Special Angles**

There are 2 special triangles:

**i)** isosceles: 45° - 45° - 90°
**ii)** half equilateral: 30° - 60° - 90°

**i)**

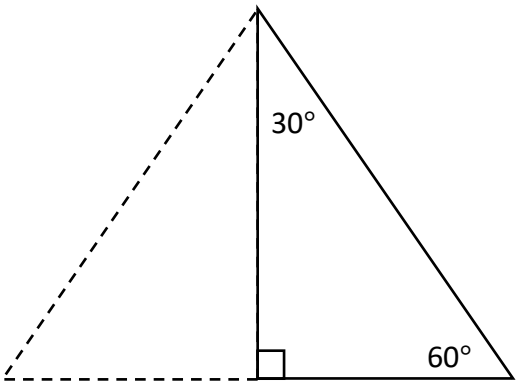



$\sin 45° =$

$\cos 45° =$

$\tan 45° =$

**ii)**




$\sin 30° =$

$\cos 30° =$

$\tan 30° =$

$\sin 60° =$

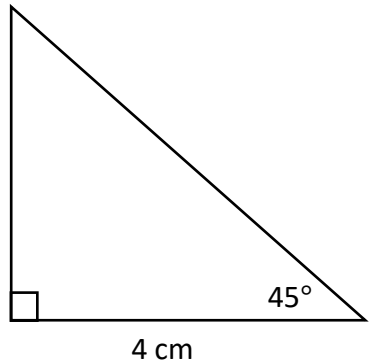
$\cos 60° =$

$\tan 60° =$

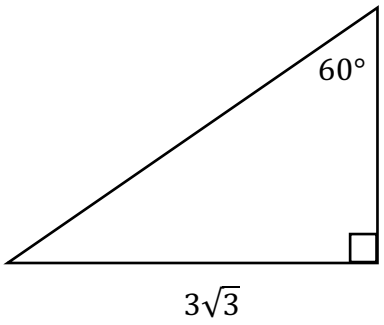
All sized right triangles with these angles are SIMILAR and therefore will have the same ratios of corresponding sides. Therefore, we can use these 2 special triangles to get _____ values for trig ratios involving a 30°, 45°, or 60° reference angle AND we don't need a calculator!

**Example 2:** Use special triangles to find the EXACT values of all sides and angles

**a)**



**b)**




**Example 3:** Determine the exact value of…

**a)** $(\sin 45°)(\cos 45°) + (\sin 30°)(\sin 60°)$

**b)** $\frac{\sin^2 30°}{1-\cos 30°}$

**Part 3: Rationalizing the Denominator**

*Fractions should be simplified so that the denominator contains only rational numbers.*

**Example 4:** Rationalize the denominator for each of the following expressions

**a)** $\frac{1}{\sqrt{2}}$

**b)** $\frac{3}{1+\sqrt{5}}$