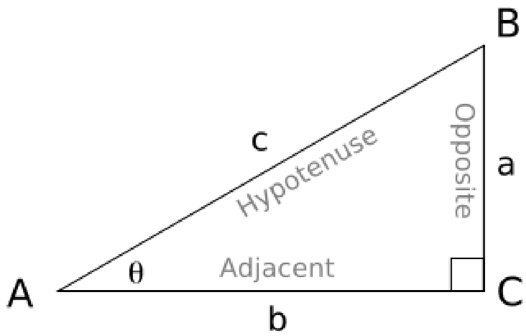
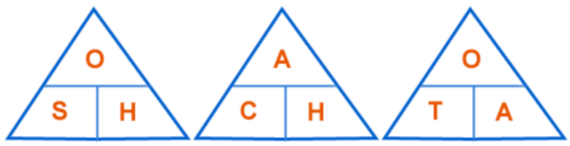
Front	Back
Pythagoras' Theorem $c^2 = a^2 + b^2$ Trigonometric Ratios *SOHCAHTOA*	**Rules that Can be Used With Right-Angled Triangles**
	**Triangle Notation**
For right-angled triangles only $c^2 = a^2 + b^2$ Used to find the length of the third side when the other 2 sides are known	**Pythagoras' Theorem**
Sine (sin), cosine (cos) and tangent (tan) are ratios of two sides in a right-angled triangle.	**Trigonometric Ratios**

Front	Back
$\sin\theta = \dfrac{\textit{length of the opposite side}}{\textit{length of the hypotenuse}} = \dfrac{O}{H}$	**Sine Ratio**
$\cos\theta = \dfrac{\textit{length of the adjacent side}}{\textit{length of the hypotenuse}} = \dfrac{A}{H}$	**Cosine Ratio**
$\tan\theta = \dfrac{\textit{length of the opposite side}}{\textit{length of the adjacent side}} = \dfrac{O}{A}$	**Tangent Ratio**
$\tan\theta = \dfrac{\sin\theta}{\cos\theta}$	**Relationship Between Sine, Cosine and Tangent**

Front	Back
To find the value of a ratio To find θ when 2 lengths are known To find a length when another length and θ are known	**When Do We Use Trigonometric Ratios?**
SOH CAH TOA	**Summary of Trigonometric Ratios**
If $\sin\theta = \text{number}$ $\uparrow \qquad \uparrow$ $angle \quad \text{ratio of 2 side } lengths$ Then $\theta = \sin^{-1}(\text{number})$ $\uparrow \qquad\qquad \uparrow$ $angle \qquad \text{ratio of 2 side } lengths$	**Relationship Between an Angle and a Ratio**
Use Pythagoras' Theorem to calculate the length of the third side. Use a trigonometric ratio to find one of the angles. Find the last angle by subtracting known angles from 180^o.	**Finding All Missing Angles and Sides of a Triangle When 2 Sides are Known**

<table>
<tr><th>Front</th><th>Back</th></tr>
<tr><td>Use a trigonometric ratio to find the length of one missing side.

Use Pythagoras’ Theorem to calculate the length of the third side.

Find the last angle by subtracting known angles from 180^o.</td><td>Finding All Missing Angles and Sides of a Triangle When 1 Side and 1 Angle are Known</td></tr>
<tr><td>
</td><td>SOH CAH TOA Pyramids</td></tr>
<tr><td>3, 4, 5
5, 12, 13
7, 24, 25
8, 15, 17

where the longest side is the hypotenuse.</td><td>Common Triplets</td></tr>
<tr><td>If a triplet exists, the triangle must be a right-angled triangle and therefore, $c^2 = a^2 + b^2$.</td><td>Pythagoras’ Theorem and Triplets</td></tr>
</table>

Front	Back
$\cos 30^o = \frac{\sqrt{3}}{2}$ $\sin 30^o = \frac{1}{2}$ $\tan 30^o = \frac{1}{\sqrt{3}}$	**Exact Values Based on** 30^o
$\cos 45^o = \frac{1}{\sqrt{2}}$ $\sin 45^o = \frac{1}{\sqrt{2}}$ $\tan 45^o = 1$	**Exact Values Based on** 45^o
$\cos 60^o = \frac{1}{2}$ $\sin 60^o = \frac{\sqrt{3}}{2}$ $\tan 60^o = \sqrt{3}$	**Exact Values Based on** 60^o
$\cos 0^o = 1$ $\sin 0^o = 0$ $\tan 0^o = 0$	**Exact Values Based on** 0^o

Front	Back
$\cos 90^o = 0$ $\sin 90^o = 1$ $\tan 90^o = \infty$	**Exact Values Based on** 90^o