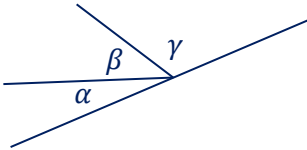
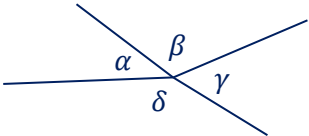
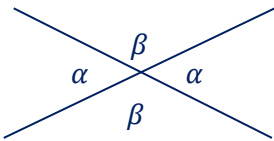


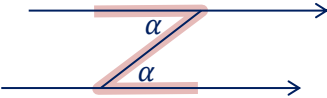
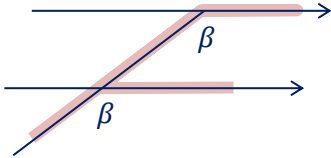
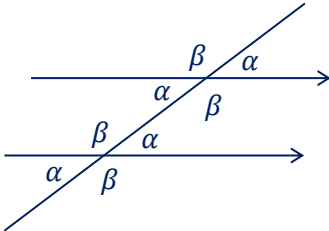
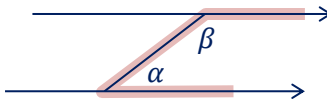
# USEFUL FACTS ABOUT ANGLES

By the Maths Learning Centre, University of Adelaide


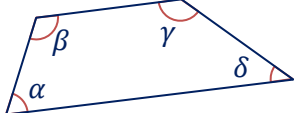

## The Basics

<p>When angles share a vertex and fill one side of a line, they add to <math>180^\circ</math>.</p>		$\alpha + \beta + \gamma = 180^\circ$
<p>When angles share a vertex and fill the space around a point, they add to <math>360^\circ</math>.</p>		$\alpha + \beta + \gamma + \delta = 360^\circ$
<p>When two lines cross, opposite angles are equal.</p>		

## Parallel Lines


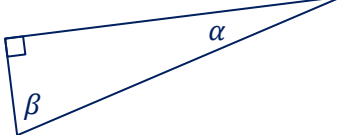
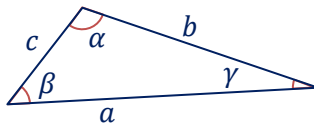
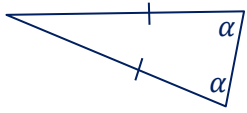
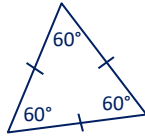
<p>When a line crosses parallel lines, alternate angles are equal.</p>		
<p>When a line crosses parallel lines, corresponding angles are equal.</p>		
<p>When a line crosses parallel lines, co-interior angles add to <math>180^\circ</math>.</p>	 <p><math>\alpha + \beta = 180^\circ</math></p>	$\alpha + \beta = 180^\circ$

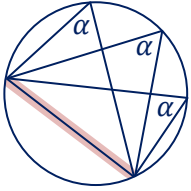
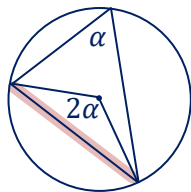
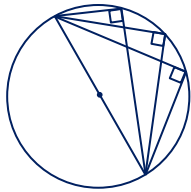
## Shapes

<p>The angles in any triangle add to <math>180^\circ</math>.</p>		$\alpha + \beta + \gamma = 180^\circ$
<p>The angles in any quadrilateral add to <math>360^\circ</math>.</p>		$\alpha + \beta + \gamma + \delta = 360^\circ$
<p>The angles in any polygon with <math>n</math> sides add to <math>(n - 2) \times 180^\circ</math>.</p>		<p>Angle sum = <math>(n - 2) \times 180^\circ</math></p>

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<b>Triangles</b>	
The angles in any triangle add to $180^\circ$ .	 $\alpha + \beta + \gamma = 180^\circ$
In a right-angled triangle, the two smaller angles add to $90^\circ$ .	 $\alpha + \beta = 90^\circ$
In a triangle, the largest angle is opposite the longest side, and the smallest angle is opposite the shortest side.	 $a \geq b \geq c \Rightarrow \alpha \geq \beta \geq \gamma$
In an isosceles triangle (two sides equal), the angles opposite the equal sides are equal.	
In an equilateral triangle (all sides equal), the angles are all $60^\circ$ .	

<b>Circles</b>	
In a circle, all the angles subtended at the edge by the same chord are equal.	
In a circle, the angle subtended at the centre by a chord is twice the angle subtended at the edge.	
The angle subtended in a semicircle is a right angle.	
At a point on the edge of a circle, the angle between the radius and the tangent is a right angle.	