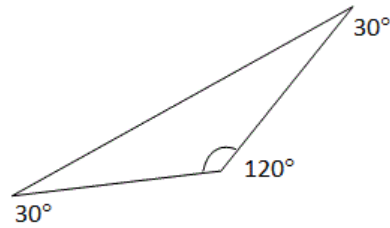
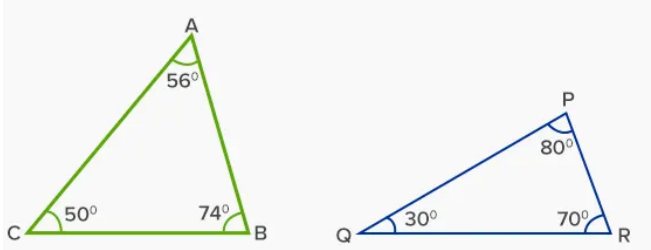


ANGLES in a Triangle and Quadrilateral Instructional Sheet

A Triangle is a three-sided shape and a QUADRILATERAL is any four-sided shape (Square, Rectangle, Parallelogram, Trapezoid, etc). Think about tricycles (3 wheels) and quads (4 wheels).

1) Angles in a triangle

- take a look at the three triangles below (two acute triangles and one obtuse)



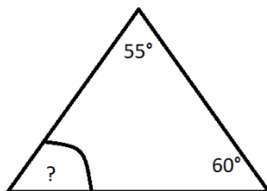
- if you add up the angles, you always get the same sum $(50 + 56 + 74 = 180)$

$$(30 + 80 + 70 = 180)$$

*****All the angles in a triangle add up to 180°** $(30 + 120 + 30 = 180)$

- Using this magical fact, you can even find the missing angle in a triangle:

Example 1:



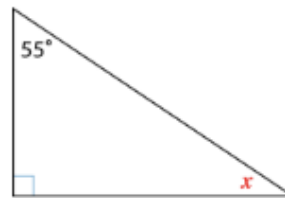
$$55 + 60 = 115$$

$$115 + ? = 180$$

$$180 - 115 = 65$$

$$? = 65^\circ$$

Example 2:



$$55 + \text{right angle} + X = 180$$

$$55 + 90 + X = 180$$

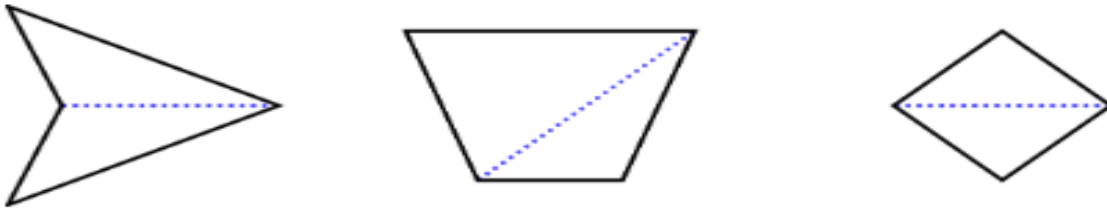
$$145 + X = 180$$

$$180 - 145 = 35$$

$$X = 35^\circ$$

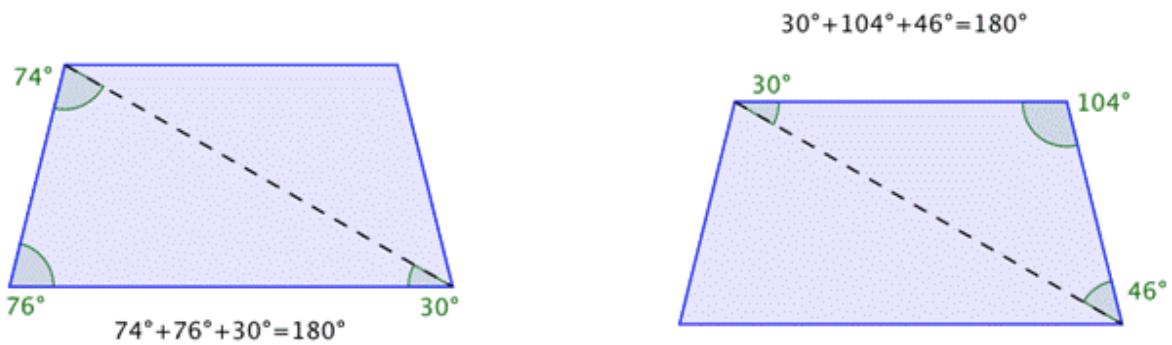
A similar trick works for Quadrilaterals

Any quadrilateral can be broken into two triangles.



1) Angles in a quadrilateral

- take a look at the same quadrilateral below (it is divided into two triangles)

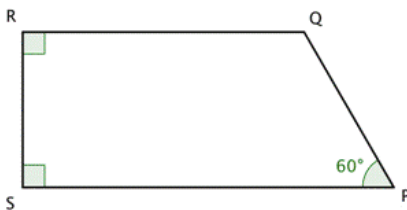


- both triangles in the quadrilateral add up to 180° , and if there are always 2 triangles in every quadrilateral, then...

*****All of the angles in a quadrilateral add up to 360° ($180^\circ + 180^\circ = 360^\circ$)**

- Using this magical fact, you can even find the missing angle in a quadrilateral:

Example 1:



$$R + S + P + Q = 360$$

$$90 + 90 + 60 + Q = 360$$

$$240 + Q = 360$$

$$360 - 240 = Q$$

$$Q = 120^\circ$$

Example 2:



$$80 + 105 + 75 + X = 360$$

$$260 + X = 360$$

$$X = 360 - 260$$

$$X = 100^\circ$$