**THE SPECIAL TRIANGLES.**

Consider an equilateral triangle with sides of 2 cm.

Obviously the angles are all 600

Split the triangle in half:

2 2 2

***x***

2 1

Calculating ***x*** by Pythagoras’s Theorem:

***x2 + 12 = 22***

***x2 = 3***

***x = √3*** 300

***2*** ***√3***

From this triangle we can “read off”

all the trigonometric ratios for 600 and 300

***sin 60 = √3 sin 30 = 1*** 600

***2 2 1***

***cos 60 = 1 cos 30 = √3***

***2 2***

***tan 60 = √3 tan 30 = 1 which we usually simplify to √3***

***1 √3 3***

Similarly consider a right angled isosceles triangle with the equal sides = 1 cm

The other angles are both 450

Obviously ***x2 = 1 + 1 45***

***x 1 x = √2 √2 1***

450

***1*** ***1***

Obviously we read off these values: ***sin 45 = cos 45 = 1 and tan 45 = 1***

***√2***

VIDEO <http://screencast.com/t/iXuA4jCACUu>