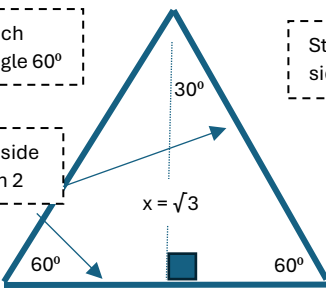


USING TRIANGLES TO FIND TRIG FUNCTIONS

(FOR 30°, 45° & 60°)

Each
angle 60°

Step 1: Draw a triangle with each
side = 2 and each angle 60°.



Each side
length 2

Step 2: Draw a line down the
middle. This has the unknown
length x.

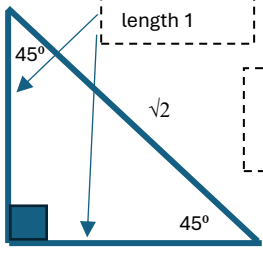
Step 3: Use $a^2 + b^2 = c^2$ to
calculate the length of x.
 $1^2 + x^2 = 2^2 \rightarrow x = \sqrt{3}$

Step 4: Use the definitions of the trig functions to determine their values.

sin 30	= o/h = 1/2	tan 30 = o/a = 1/√3
cos 30	= a/h = √3/2	tan 60 = a/o = √3
sin 60	= o/h = √3/2	
cos 60	= a/h = 1/2	

2 sides with
length 1

Use $a^2 + b^2 = c^2$ to calculate
the hypotenuse.
 $1^2 + 1^2 = c^2 \rightarrow c = \sqrt{2}$



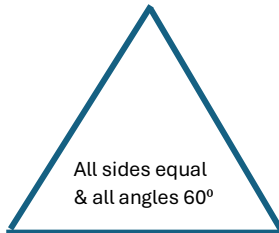
Use the definitions of the trig functions to determine their values.

sin 45	= o/h = 1/√2	= √2/2
cos 45	= a/h = 1/√2	= √2/2
tan 45	= o/a = 1/1	= 1

Multiply the top and bottom by
√2. The bottom becomes 2.

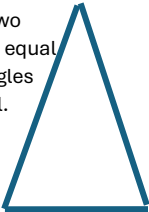
TYPES OF TRIANGLES

Defined (more often) by the sides



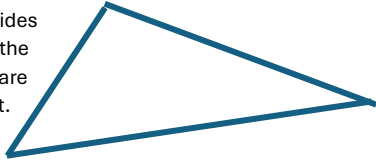
Equilateral

All sides equal
& all angles 60°



Isosceles

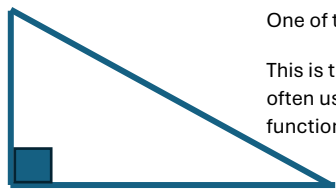
Exactly two
sides are equal
& two angles
are equal.



Scalene

All the sides
(and all the
angles) are
different.

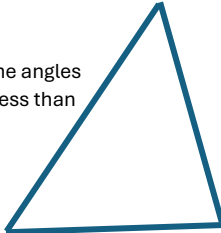
Defined (more often) by angles



Right angle

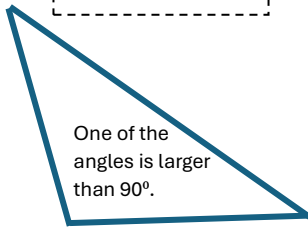
One of the angles is 90°.

This is the triangles most
often used for trig
functions.



Acute

All the angles
are less than
90°.



Obtuse

One of the
angles is larger
than 90°.

For ALL these
triangles the
internal angles
add up to 180°

Triangles can fit
into more than one
category.