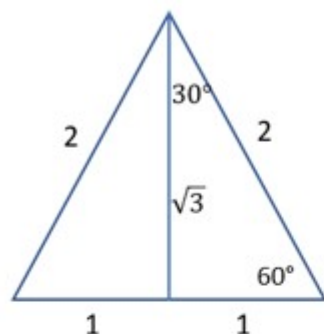


Knowing the values of sine, cosine, tangent for 0, 30, 45 and their multiples

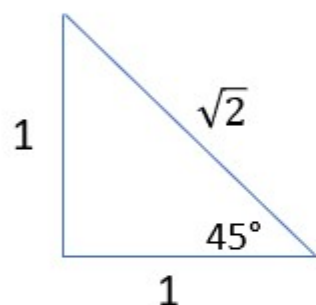
For 30 and 60 degrees draw an equilateral triangle of side 2 and use Pythagoras to get perpendicular height.



$$\sin 60 = \frac{\sqrt{3}}{2} \quad \cos 60 = \frac{1}{2} \quad \tan 60 = \sqrt{3}$$

$$\sin 30 = \frac{1}{2} \quad \cos 30 = \frac{\sqrt{3}}{2} \quad \tan 30 = \frac{1}{\sqrt{3}}$$

For 45 degrees draw a right angled isosceles triangle with sides = 1



$$\sin 45 = \frac{1}{\sqrt{2}} \quad \cos 45 = \frac{1}{\sqrt{2}}$$

$$\tan 45 = 1$$

## Example

Do **not** use a calculator to answer any part of this question.  
You must show all your working.

Express  $\frac{\sin 30^\circ}{\tan 60^\circ}$  in the form  $\frac{\sqrt{a}}{b}$ , where  $a$  and  $b$  are integers to be found.

I recommend drawing the diagrams above but at the very least you need to write separately

$$\sin 30 = \frac{1}{2} \quad \tan 60 = \sqrt{3}$$

$$\frac{\sin 30}{\tan 60} = \frac{\frac{1}{2}}{\sqrt{3}} = \frac{1}{2\sqrt{3}} = \frac{\sqrt{3}}{6}$$