

**Trig Exact Values Help sheet – NON – CALCULATOR [www.m4ths.com](http://www.m4ths.com)**

**The correct way** Derive each value using triangles. (Not essential to know)

**The slightly less correct way** Learn the values from this table

	0	30	45	60	90
$\sin \theta$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos \theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\tan \theta$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	$\infty^+$

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	0	30	45	60	90
$\sin \theta$	$\frac{\sqrt{0}}{2}$	$\frac{\sqrt{1}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{4}}{2}$
$\cos \theta$	$\frac{\sqrt{4}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{1}}{2}$	$\frac{\sqrt{0}}{2}$
$\tan \theta$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$

**The even more less correct way** Memorise the values for  $\sin \theta$  from this table

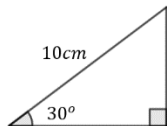
	0	30	45	60	90
$\sin \theta$	$\frac{\sqrt{0}}{2}$	$\frac{\sqrt{1}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{4}}{2}$

THEN Reverse these for  $\cos \theta$  THEN Divide  $\sin \theta$  by  $\cos \theta$  for  $\tan \theta$

**The horrible way** Google the ‘finger/hand method’

**Sample NON- CALCULATOR QUESTIONS**

- Find the value of  $6 \times \sin 30 \times \tan 45$
- Show that  $(\tan 60 + \tan 45)^2 \equiv 4 + 2\sqrt{3}$
- Show that  $(\cos 30 + \sin 60)^2$  is an integer.
- Show that  $\frac{2}{\tan 60 + \tan 45} = \sqrt{3} - 1$
- Show that  $\frac{5}{\sin 60} = \frac{10\sqrt{3}}{3}$
- Use trig exact values to find the perimeter of the triangle



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$\cos \theta$	$\frac{\sqrt{4}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{1}}{2}$	$\frac{\sqrt{0}}{2}$
$\tan \theta$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$	$\frac{\sin \theta}{\cos \theta}$

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