

Trigonometric Equations

These problems require you to determine value(s) of an angle which satisfy a particular equation.

- To do this the equation needs to be expressed in a single trig function eg \sin , \cos or \tan .
- Then put $x =$ this function eg $x = \cos\theta$.
- Solve for x
- Then $\theta = \cos^{-1}(\text{value of } x)$

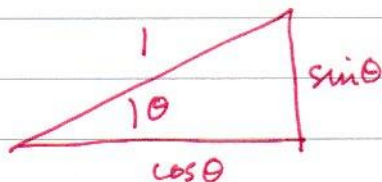
To do this you may need

$\cos^2\theta + \sin^2\theta = 1$ This can be used to get, for example, $\sin^2\theta = 1 - \cos^2\theta$ and so get everything in terms of $\cos\theta$.

Also you may well need

$$\tan\theta = \frac{\sin\theta}{\cos\theta}$$

These are easy to remember if you think of a right angle triangle of hypotenuse 1. Then the side opposite is $\sin\theta$, side adjacent is $\cos\theta$



Pythagoras $\sin^2\theta + \cos^2\theta = 1$
 $\tan\theta = \frac{\text{opp}}{\text{adj}} = \frac{\sin\theta}{\cos\theta}$