

*Further Trigonometry*

## Essential information

**Radian measures** 1 degree =  $\frac{\pi}{180}$  and note that

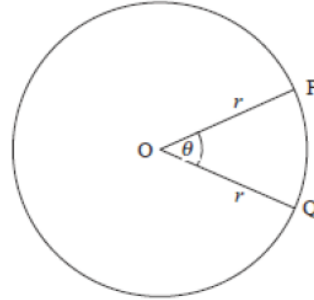
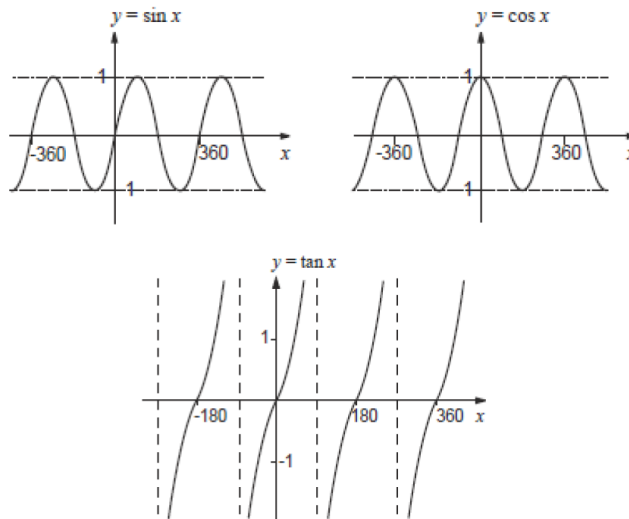
$$45^\circ = \frac{\pi}{4}, \quad 90^\circ = \frac{\pi}{2}, \quad 180^\circ = \pi, \quad 270^\circ = \frac{3\pi}{2}, \quad 360^\circ = 2\pi$$

**Arc length**

$$\text{arc length, } PQ = r\theta$$

**Sector area**

$$\text{sector area OPQ} = \frac{1}{2}r^2\theta$$

**Sine, cosine and tangent functions for all angles****Properties of trig functions**

	<u>Degrees</u>	<u>Radians</u>
1.	$\cos(x) = \sin(90^\circ - x)$	$\cos(x) = \sin\left(\frac{\pi}{2} - x\right)$
2.	$\sin(x) = \cos(90^\circ - x)$	$\sin(x) = \cos\left(\frac{\pi}{2} - x\right)$
3.	$\cos(180^\circ - x) = -\cos(x)$	$\cos(\pi - x) = -\cos(x)$
4.	$\sin(180^\circ - x) = +\sin(x)$	$\sin(\pi - x) = \sin(x)$
5.	$\tan x = \frac{\sin x}{\cos x}$	
6.	$\sin^2 x + \cos^2 x = 1$	