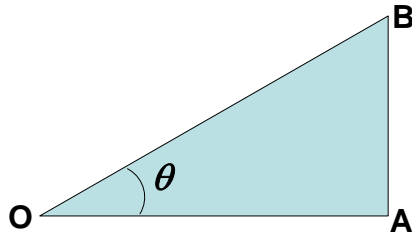


Trigonometry – Basic definitions

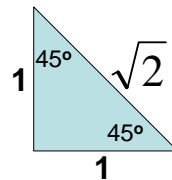
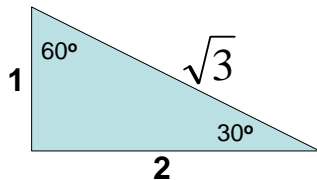


$$\sin \theta = \frac{AB}{OB} = \frac{\text{side opposite}}{\text{hypotenuse}} = \frac{1}{\operatorname{cosec} \theta}$$

$$\cos \theta = \frac{OA}{OB} = \frac{\text{side adjacent}}{\text{hypotenuse}} = \frac{1}{\operatorname{sec} \theta}$$

$$\tan \theta = \frac{AB}{OA} = \frac{\text{side opposite}}{\text{side adjacent}} = \frac{\sin \theta}{\cos \theta} = \frac{1}{\cot \theta}$$

Special triangles



sin/cos/tan of special angles

degr	rads	sin	cos	tan
0	0	0	1	0
30	$\pi/6$	$1/2$	$\sqrt{3}/2$	$1/\sqrt{3}$
45	$\pi/4$	$\sqrt{2}/2$	$\sqrt{2}/2$	1
60	$\pi/3$	$\sqrt{3}/2$	$1/2$	$\sqrt{3}$
90	$\pi/2$	1	0	∞

$$\sin(-\theta) = -\sin(\theta) \quad \cos(-\theta) = \cos(\theta)$$

$$\sin(\pi - \theta) = \sin(\theta) \quad \cos(\pi - \theta) = -\cos(\theta)$$

$$\sin \theta = \cos\left(\frac{\pi}{2} - \theta\right)$$