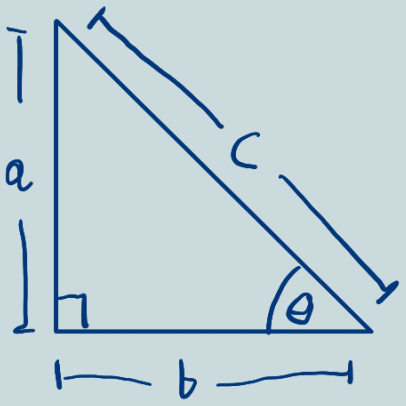
Geometry & Trigonometry

#3 Right Triangles & Trigonometry

Trigonometric Ratios

Idea: ratios determine the circle...



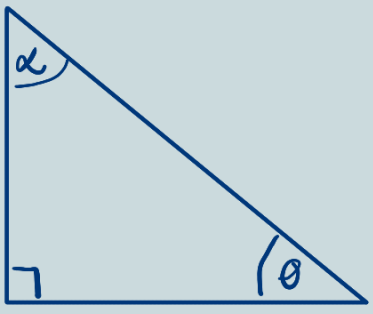
$$\sin\theta = \frac{a}{c} = \frac{opp_\theta}{hyp}$$

$$\cos\theta = \frac{b}{c} = \frac{adj_\theta}{hyp}$$

If you don't remember $\tan\theta$, use

$$\tan\theta = \boxed{\frac{\sin\theta}{\cos\theta}} = \frac{opp_\theta}{hyp} \times \frac{hyp}{adj_\theta} = \frac{opp_\theta}{adj_\theta}$$

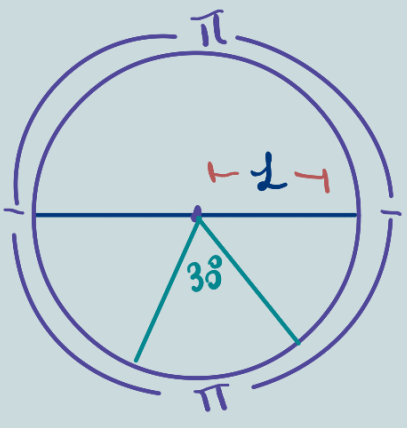
For example: $\sin(\theta) = \cos(90^\circ - \theta)$. Do you see why?



Radian Measure

radius = 1 (unit circle)

Idea: what arc with angle θ° in the unit circle has length of π?



$$\frac{180^\circ}{6} = \frac{\pi}{6} \text{ radians}$$

$$30^\circ = \frac{\pi}{6} \text{ rad}$$