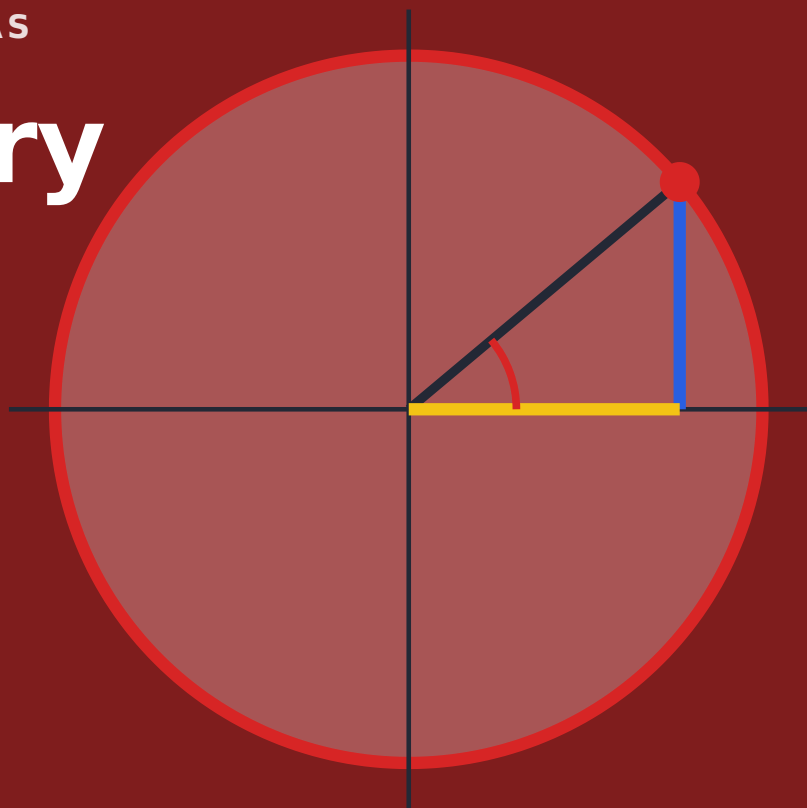


# Trigonometry



**Sine rule; cosine rule**

$$\frac{a}{\sin A} = \frac{b}{\sin B}, \quad a^2 = b^2 + c^2 - 2bc \cos A$$

**Area; arc; sector (radians)**

$$\frac{1}{2}ab \sin C; \quad s = r\theta; \quad A = \frac{1}{2}r^2\theta$$

**Identities**

$$\tan \theta = \frac{\sin \theta}{\cos \theta}, \quad \sin^2 \theta + \cos^2 \theta = 1$$

**Reciprocal**

$$\sec^2 \theta = 1 + \tan^2 \theta, \quad \operatorname{cosec}^2 \theta = 1 + \cot^2 \theta$$

**Double angle**

$$\begin{aligned} \sin 2A &= 2 \sin A \cos A, \\ \cos 2A &= \cos^2 A - \sin^2 A = 2 \cos^2 A - 1 = 1 - 2 \sin^2 A \end{aligned}$$

**Double angle (tan)**

$$\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

**Compound sin** B

$$\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

**Compound cos** B

$$\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$

B given in the exam. Learn the rest.