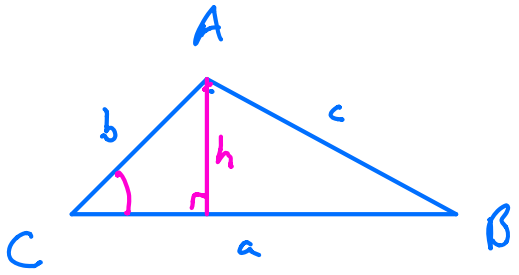
Area of a Triangle



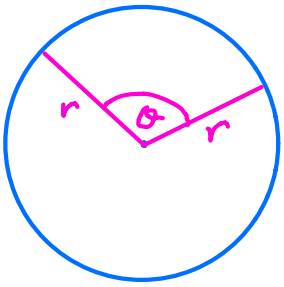
$$\text{Area} = \frac{1}{2}\,\text{base} \times \text{height} = \frac{1}{2}ah \quad (*)$$

$$\sin C = \frac{h}{b} \Rightarrow h = b\sin C$$

Sub for h in (*)

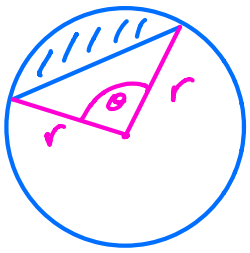
$$\underline{\text{Area} = \frac{1}{2}ab\sin C}$$

Area of a Sector



$$\text{Area} = \pi r^2 \times \frac{\theta}{360}$$

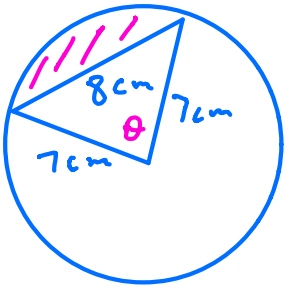
Area of a Segment



$$\text{Area} = \text{Area of Sector} - \text{Area of Triangle}$$

$$\pi r^2 \times \frac{\theta}{360} - \frac{1}{2}r^2\sin\theta$$

Find Area of Segment



$$\cos\theta = \frac{7^2 + 7^2 - 8^2}{2 \times 7 \times 7} = \frac{17}{49}$$

$$\theta = \cos^{-1}\frac{17}{49} = 69.7^\circ$$

$$\text{Area of Segment} = \pi r^2 \times \frac{\theta}{360} - \frac{1}{2} r^2 \sin\theta$$

$$= \pi \times 7^2 \times \frac{69.7}{360} - \frac{1}{2} \times 7^2 \sin 69.7^\circ$$

$$= 6.83 \text{ cm}^2$$