Area and perimeter Circles

Calculate the perimeter and area of the 2D-shape on the right. BA = BC = 14 cm (radii of circle are equal in length) Length of arc AC = $\frac{1}{4} \times$ Circumference of circle B = $\frac{1}{4} \times 2\pi r$ = $\frac{1}{4} \times 2 \times \pi \times 14$ cm = 21,99 cm Perimeter of shape = 14 cm + 14 cm + 21,99 cm = 49,99 cm Area of shape = $\frac{1}{4} \times$ Area of circle B = $\frac{1}{4} \times \pi r^2$ = $\frac{1}{4} \times \pi \times (14 \text{ cm})^2 = 153,94 \text{ cm}^2$





Example

14 cm

Α

Area of circle: $A = \pi r^2$





1.

Area and perimeter

Doubling or halving one or more dimensions

Rectangle PQRS is transformed into rectangle PTUS. Explain how this transformation affects its perimeter and area.

Shape	Length	Breadth	Perimeter	Area
PQRS	25 mm	20 mm	90 mm	5 cm ²
PTUS	50 mm	20 mm	140 mm	10 cm ²

If the length of a rectangle is doubled, its perimeter increases by twice the change in length, and its area is doubled.

1. In the drawing above, rectangle PQRS is transformed into rectangle PQYX. Explain how this transformation affects its perimeter and area.

Shape	Length	Breadth	Perimeter	Area
PQRS				
PQYX				

2. In the drawing above, rectangle PQRS is transformed into rectangle PTZX. Explain how this transformation affects its perimeter and area.

Shape	Length	Breadth	Perimeter	Area
PQRS				
PTZX				

- **3.** Explain the effect on the perimeter and area if:
 - **a)** $\triangle ABC$ is transformed into $\triangle ADC$
 - **b)** $\triangle ABC$ is transformed into $\triangle ABE$



c) \triangle ABC is transformed into \triangle ADE



Example

