



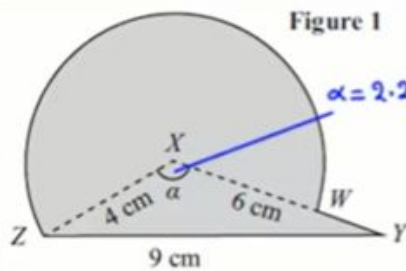
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Interact, engage and perform

Arc length

| Past Paper Question | C2 Edexcel January 2013

Q7(d)



The triangle XYZ in Figure 1 has $XY = 6$ cm, $YZ = 9$ cm, $ZX = 4$ cm and angle $ZXY = \alpha$.

The point W lies on the line XY .

The circular arc ZW , in Figure 1 is a major arc of the circle with centre X and radius 4 cm.

The region enclosed by the major arc ZW of the circle and the lines WY and YZ is shown shaded in Figure 1.

Calculate

(d) the perimeter $ZWYZ$ of this shaded region.

$$\text{Arc length} = \frac{(2\pi - 2.2195\dots)}{2\pi} \times 2\pi(4)$$
$$= 16.2547\dots \text{ cm}$$

$$l = \frac{\theta}{2\pi} \times 2\pi r$$
$$= \theta r$$

$$\therefore \text{Perimeter} = 16.2547\dots + 9 + 2$$
$$= 27.2547\dots$$
$$= 27.3 \text{ cm (3sf)}$$

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