

# The trigonometric functions

## The area of a sector (1)

**QUESTION 1** Find the area of a sector with given radius,  $r$  cm, and angle at the centre  $\theta$ . Give the answer in terms of  $\pi$ .

a  $r = 16, \theta = \frac{5\pi}{8}$

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b  $r = 2, \theta = \frac{3\pi}{2}$

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c  $r = 5, \theta = \frac{\pi}{10}$

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**QUESTION 2** Find the area of a sector with given radius,  $r$  cm, and angle at the centre  $\theta$ . Give the answer correct to two decimal places.

a  $r = 4, \theta = \frac{4\pi}{3}$

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b  $r = 11, \theta = 0.9$  radians

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c  $r = 37, \theta = 1.45$  radians

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d  $r = 6, \theta = 50^\circ$

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e  $r = 8.7, \theta = 95^\circ$

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f  $r = 55, \theta = 115^\circ$

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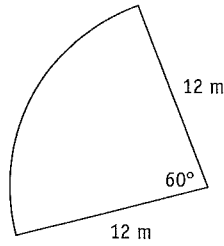
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# The trigonometric functions



## The area of a sector (2)

**QUESTION 1** The diagram shows a sector of a circle.  
Find its exact:



**a** perimeter

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**b** area

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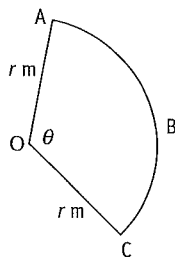
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**QUESTION 2** OABC is a sector of a circle.  
The area of the sector is  $64 \text{ m}^2$ .



**a** Show that  $\theta = \frac{128}{r^2}$

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**b** If  $r = 7$  find  $\theta$  to the nearest whole degree.

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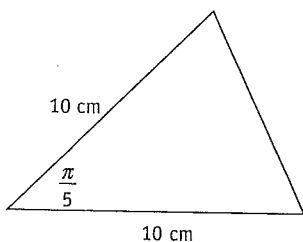
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# The trigonometric functions

## The area of a segment

**QUESTION 1** Find the area of the given shape. Give the answer correct to one decimal place.

**a** triangle



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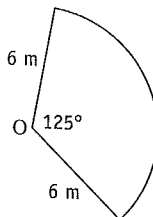
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**b** sector



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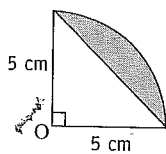
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**QUESTION 2** Find the shaded area, correct to one decimal place: (Assume each diagram shows a circular sector, centre O)

**a**



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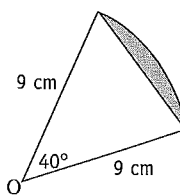
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**b**



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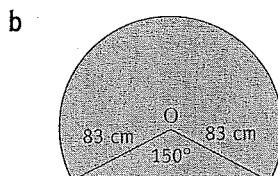
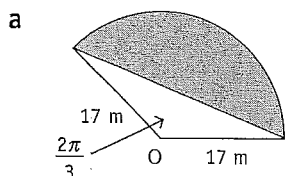
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# The trigonometric functions



## Mixed areas

QUESTION 1 Find the shaded area:




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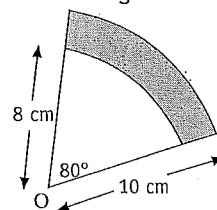
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QUESTION 2 The diagram shows two sectors with common centre, O. The radius of the larger sector is 10 cm and the radius of the smaller sector is 8 cm. Find the area shaded in the diagram.




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CHAP Page 68 1 a  $80\pi \text{ cm}^2$  b  $3\pi \text{ cm}^2$  c  $\frac{5\pi}{4} \text{ cm}^2$  2 a  $33.51 \text{ cm}^2$  b  $54.45 \text{ cm}^2$  c  $992.53 \text{ cm}^2$  d  $15.71 \text{ cm}^2$  e  $62.75 \text{ cm}^2$

f  $3035.78 \text{ cm}^2$

Page 69 1 a  $(4\pi + 24) \text{ m}$  b  $24\pi \text{ m}^2$  2 b  $150^\circ$

Page 70 1  $29.4 \text{ cm}^2$  b  $39.3 \text{ m}^2$  2 a  $7.1 \text{ cm}^2$  b  $2.2 \text{ cm}^2$

Page 71 1 a  $177.5 \text{ m}^2$  [1 d.p.] b  $14\ 347 \text{ cm}^2$  [nearest  $\text{cm}^2$ ] 2  $25.1 \text{ cm}^2$  [1 d.p.]