Maths.scot

National 5 Maths

Arcs and Sectors: Sector Area

SQA past paper and specimen paper questions and answers by topic

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National 5 Maths
SQA 2013 Specimen
Paper 2 Question 11

National 5 Maths
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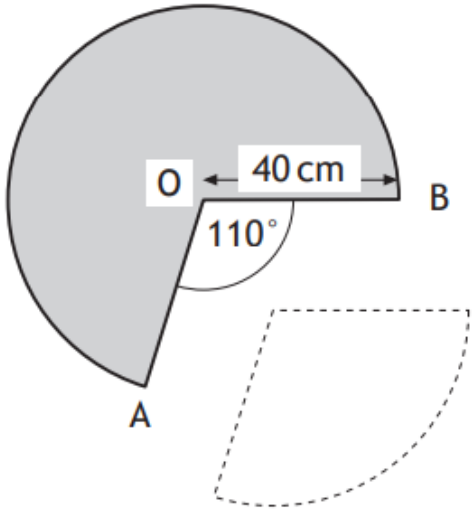
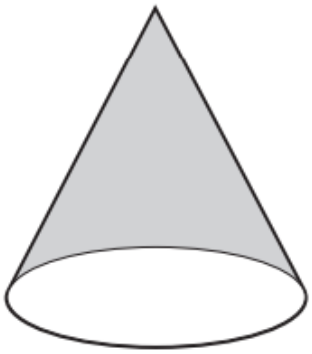
A cone is formed from a paper circle with a sector removed as shown.

The radius of the paper circle is 40 centimetres.

Angle AOB is 110°.





(a) Calculate the area of the sector removed from the circle. **3**

(b) Calculate the circumference of the base of the cone. **3**

Answers:

(a) 1536 cm^2

(b) 175 cm (approximately)

National 5 Maths
SQA 2014 Paper 2
Question 13

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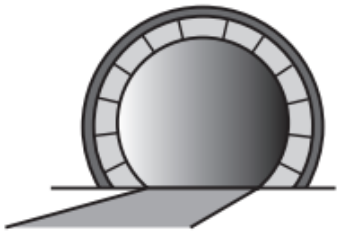
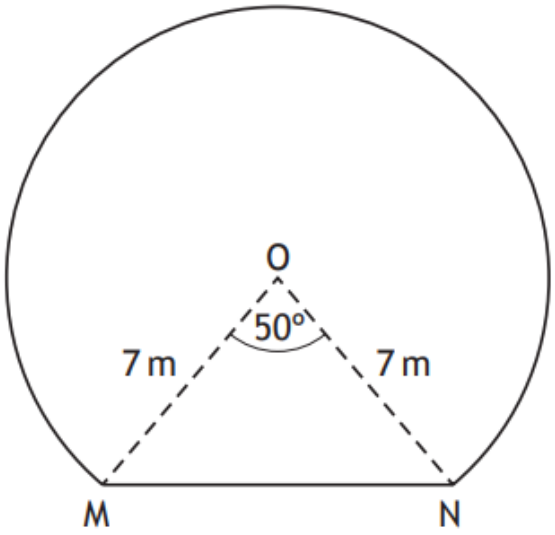
The picture shows the entrance to a tunnel which is in the shape of part of a circle.



The diagram below represents the cross-section of the tunnel.

- The centre of the circle is O.
- MN is a chord of the circle.
- Angle MON is 50°.
- The radius of the circle is 7 metres.



Calculate the area of the cross-section of the tunnel. **5**

Answer:

151.3 m^2

National 5 Maths
SQA 2016 Paper 1
Question 3

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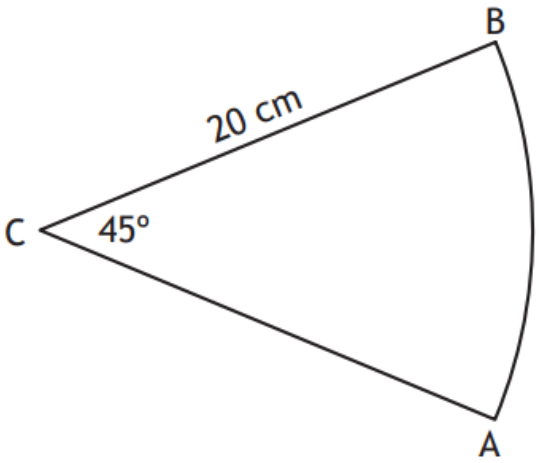
The diagram shows a sector of a circle, centre C.



The radius of the circle is 20 centimetres and angle ACB is 45°.

Calculate the area of the sector.

Take $\pi = 3{\cdot}14$. **3**

Answer:

157 cm^2

National 5 Maths
SQA 2017 Specimen
Paper 2 Question 11

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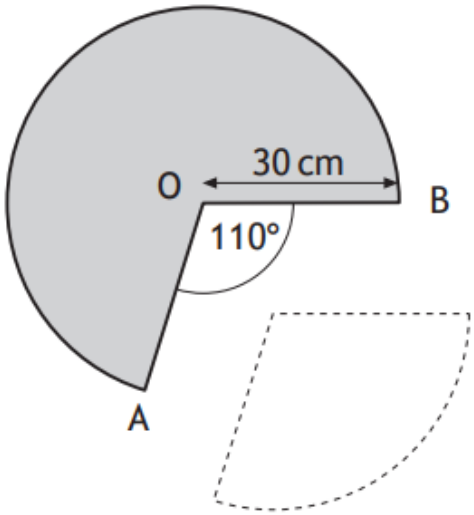
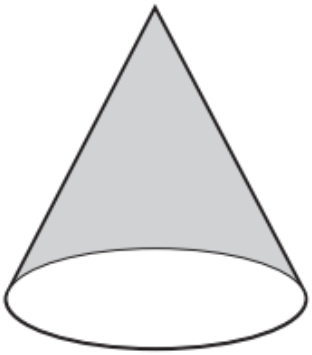
A cone is formed from a paper circle with a sector removed as shown.

The radius of the paper circle is 30 centimetres.

Angle AOB is 110°.





(a) Calculate the area of the sector removed from the circle. **3**

(b) Calculate the circumference of the base of the cone. **3**

Answers:

(a) 864 cm^2

(b) 131 cm (approximately)

National 5 Maths
SQA 2018 Paper 2
Question 17

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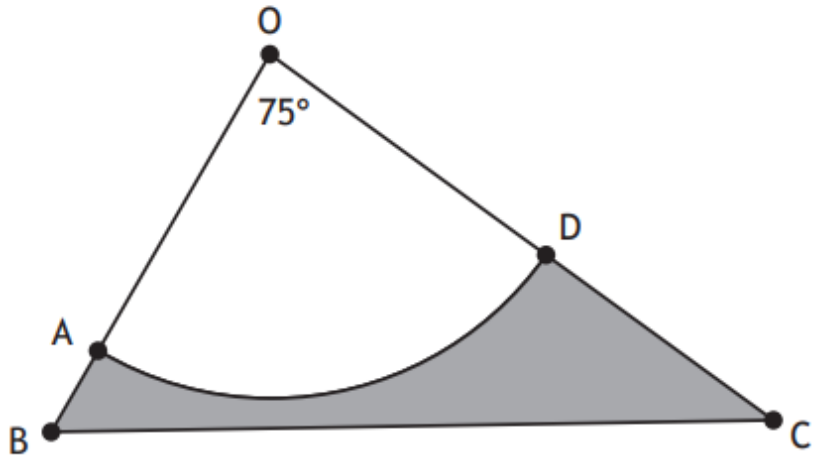
In the diagram below AOD is a sector of a circle, with centre O, and BOC is a triangle.



In sector AOD:

- radius = 30 centimetres
- angle AOD = 75°.

In triangle OBC:

- OB = 38 centimetres
- OC = 55 centimetres.

Calculate the area of the shaded region, ABCD. **5**

Answer:

420.3 cm^2

National 5 Maths
SQA 2019 Paper 2
Question 12

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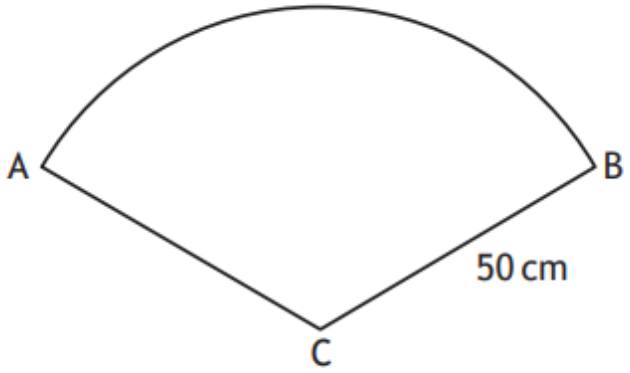
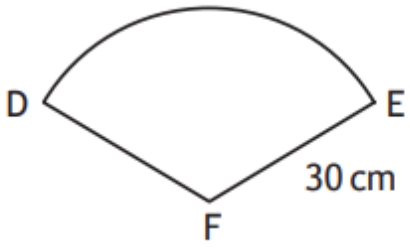
In the diagram

- ABC is a sector of a circle, centre C
- DEF is a sector of a circle, centre F.





The sectors are mathematically similar.

The area of the larger sector, ABC, is 2750 square centimetres.

(a) Calculate the area of the smaller sector, DEF. **3**

(b) Calculate the size of angle ACB. **3**

Answers:

(a) 990 cm^2

(b) 126.1°

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SQA 2021 Paper 2
Question 8

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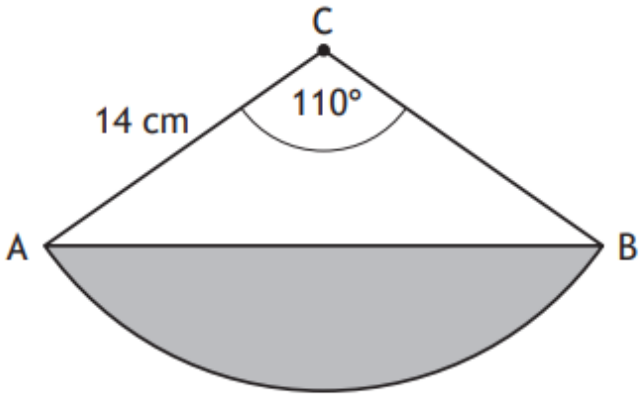
The diagram shows a sector of a circle, with centre C and radius 14 centimetres.

Angle ACB is 110°.



AB splits the sector into the shaded segment and triangle ABC.

Find the area of the shaded segment. **5**

Answer:

96.1 cm^2

National 5 Maths
SQA 2024 Paper 2
Question 15

National 5 Maths
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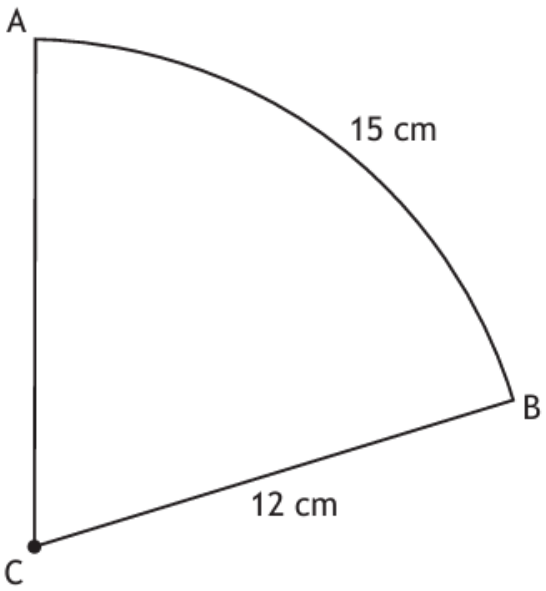
The diagram shows a sector of a circle, centre C.



The radius of the circle is 12 centimetres.

The length of arc AB is 15 centimetres.

Calculate the area of the sector. **3**

Answer:

90 cm^2

National 5 Maths
SQA 2025 Paper 2
Question 6

National 5 Maths
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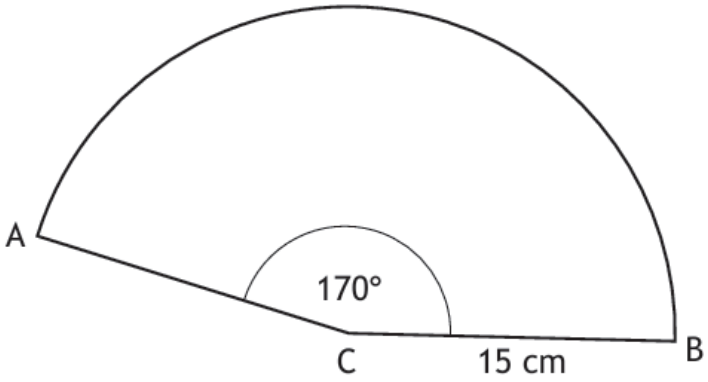
A party hat is made in the shape of a cone, as shown.

The piece of card used for making the hat is a sector of a circle, centre C.



The radius of the circle is 15 centimetres and angle ACB is 170°.

Calculate the area of the sector. **3**

Answer:

333.8 cm^2