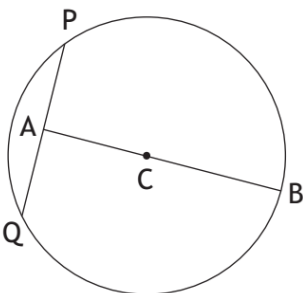
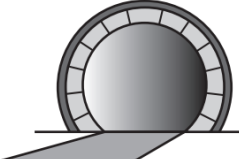
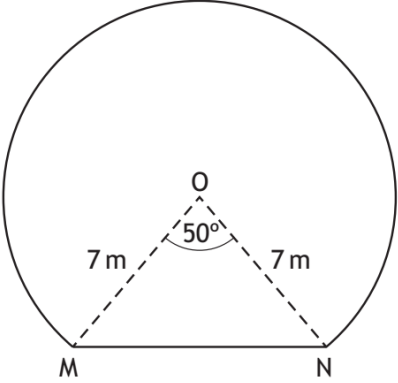
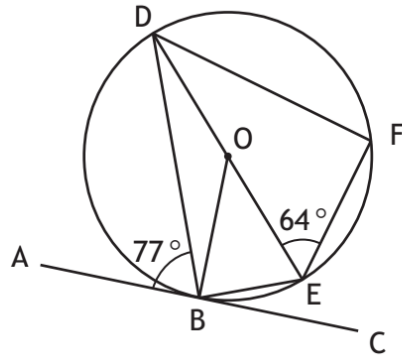


Circle Properties

YEAR	PAPER	QUESTION
2014	1	<p>The diagram below shows a circle, centre C.</p> <div style="text-align: center;">  </div> <p>The radius of the circle is 15 centimetres. A is the mid-point of chord PQ. The length of AB is 27 centimetres. Calculate the length of PQ.</p> <p style="text-align: right;">4</p>
2014	2	<p>The picture shows the entrance to a tunnel which is in the shape of part of a circle.</p> <div style="text-align: center;">  </div> <p>The diagram below represents the cross-section of the tunnel.</p> <ul style="list-style-type: none"> • 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. <div style="text-align: center;">  </div> <p>Calculate the area of the cross-section of the tunnel.</p> <p style="text-align: right;">5</p>

2015

1



AC is a tangent to the circle, centre O, with point of contact B.

DE is a diameter of the circle and F is a point on the circumference.

Angle ABD is 77° and angle DEF is 64° .

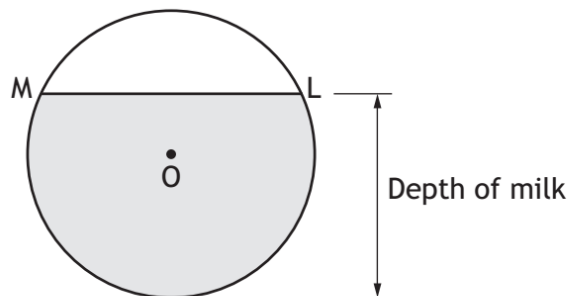
Calculate the size of angle BDF.

3

2015

2

The diagram below shows the circular cross-section of a milk tank.



The radius of the circle, centre O, is 1.2 metres.

The width of the surface of the milk in the tank, represented by ML in the diagram, is 1.8 metres.

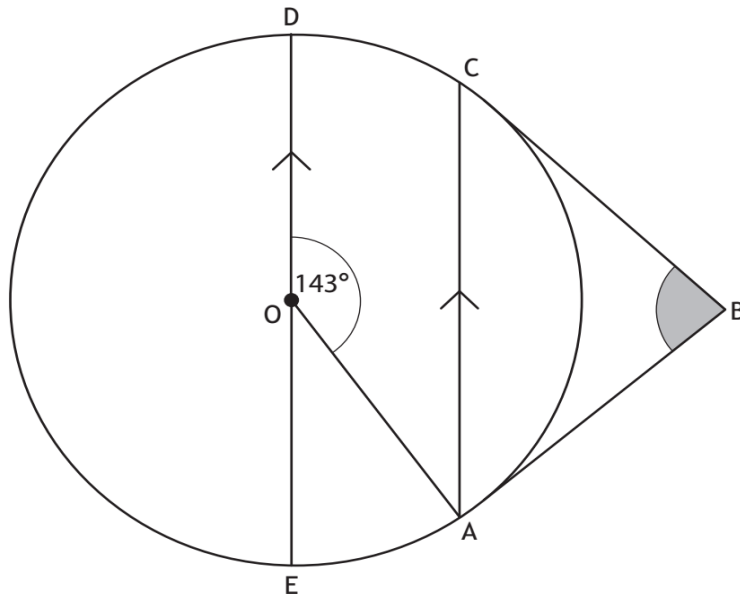
Calculate the depth of the milk in the tank.

4

2016

2

The diagram below shows a circle, centre O.



- AB and CB are tangents to the circle.
- AC and ED are parallel.
- Angle AOD is 143° .

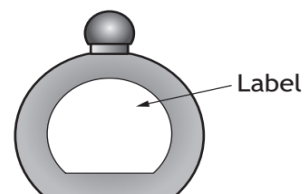
Calculate the size of angle ABC.

3

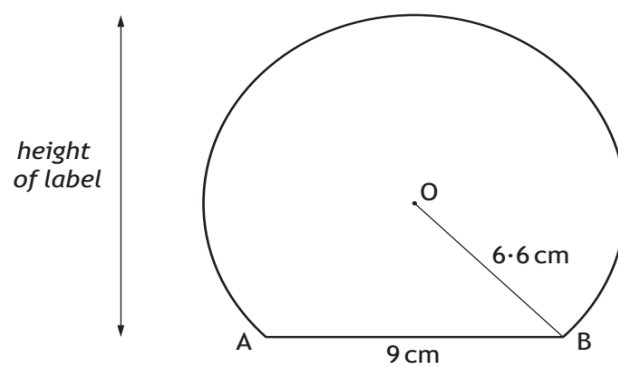
2016

2

This perfume bottle has a label in the shape of part of a circle.



A diagram of the label is shown below.



- The centre of the circle is O.
- The chord AB is 9 centimetres.
- The radius OB is 6.6 centimetres.

Find the height of the label.

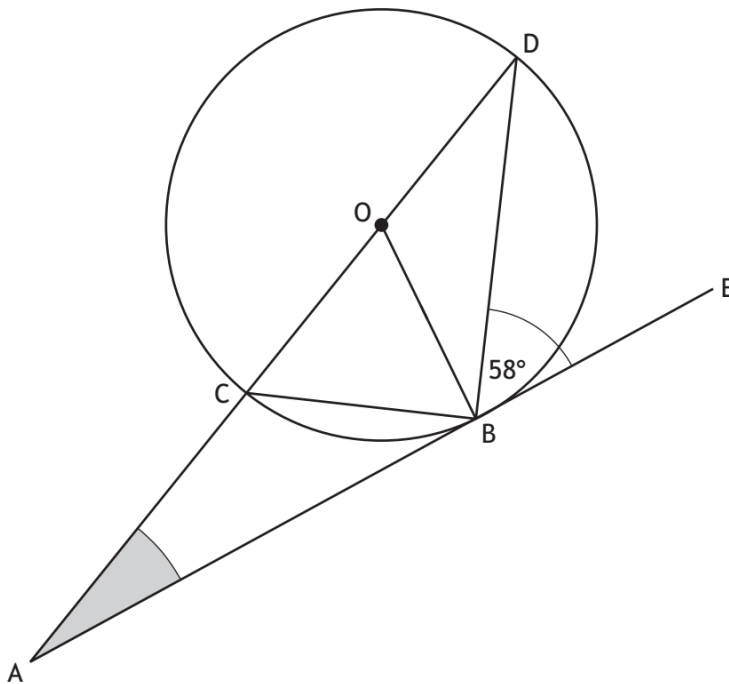
4

2017

1

In the diagram shown below:

- ABE is a tangent to the circle centre O
- Angle DBE is 58°



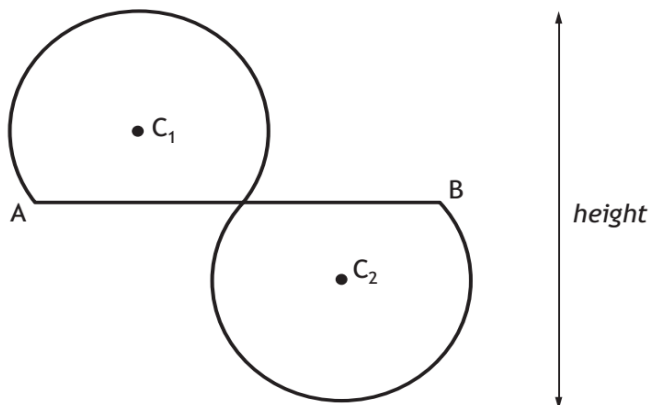
Calculate the size of angle CAB.

3

2017

2

Two identical shapes are used to form a logo.
Each shape is part of a circle.



- The circles have centres C_1 and C_2 .
- The radius of each circle is 14 centimetres.
- The logo has half-turn symmetry about the mid-point of AB.
- AB is 48 centimetres long.

Calculate the height of the logo.

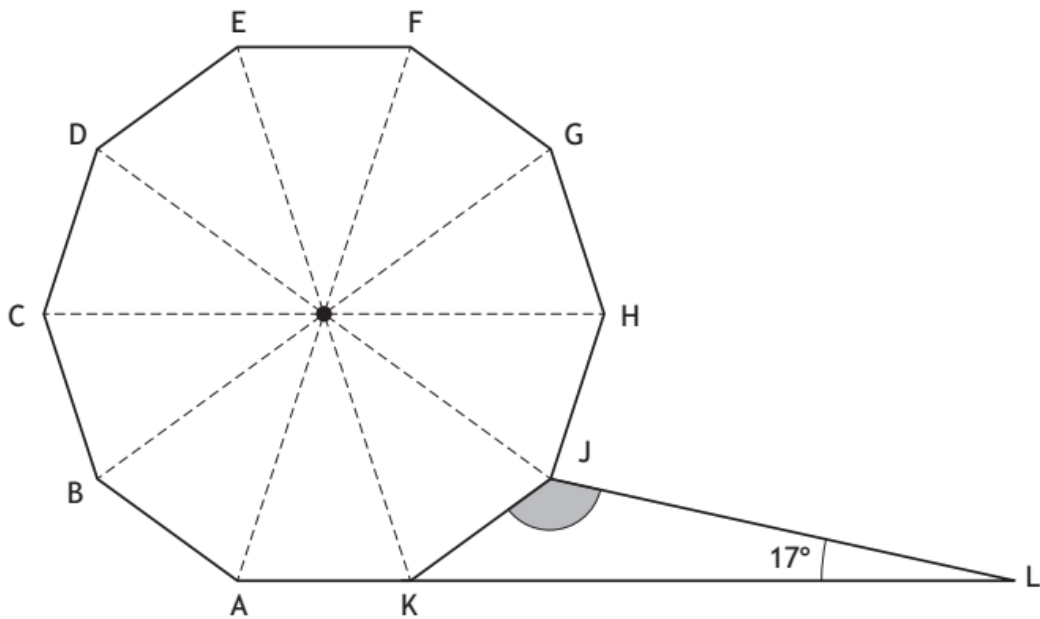
4

2018

1

In the diagram shown below, ABCDEFGHJK is a regular decagon.

- Angle KLJ is 17° .
- AKL is a straight line.



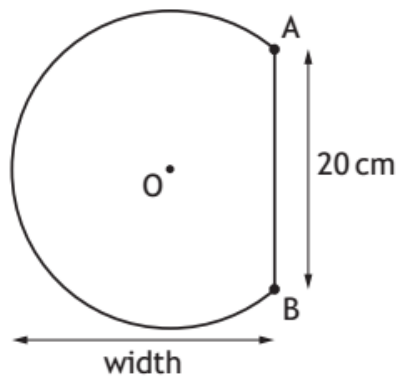
Calculate the size of shaded angle KJL.

2

2018

2

The shape below is part of a circle, centre O.



The circle has radius 13 centimetres.

AB is a chord of length 20 centimetres.

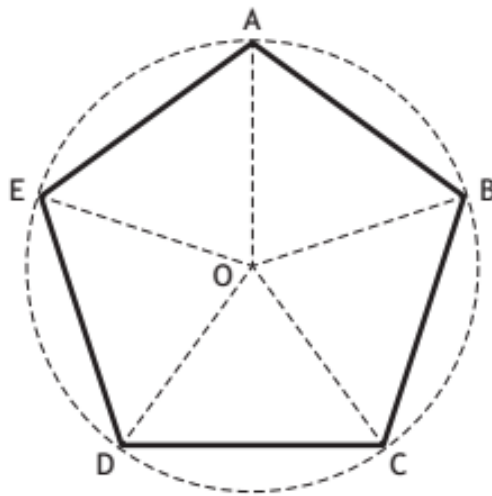
Calculate the width of the shape.

4

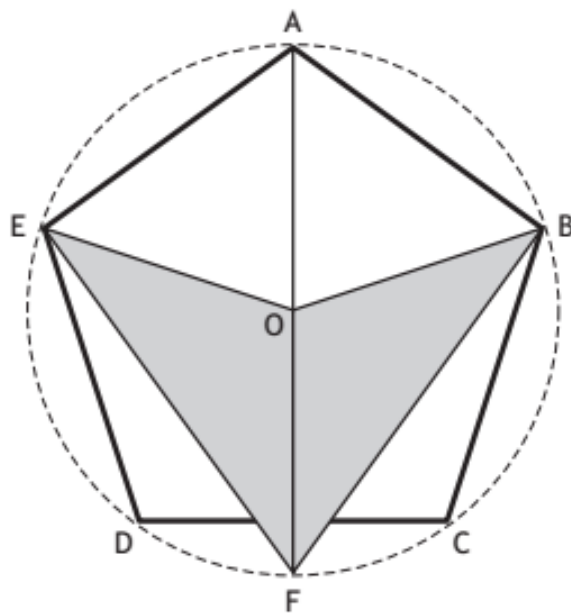
Pam is designing a company logo.

She starts by drawing a regular pentagon $ABCDE$.

The vertices of the pentagon lie on the circumference of a circle with centre O .



She then adds to the design as shown in the diagram below.



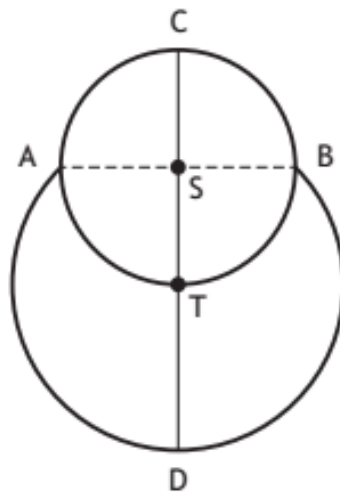
AF is a diameter of the circle.

Calculate the size of angle OFB .

The picture shows a cartoon snowman.



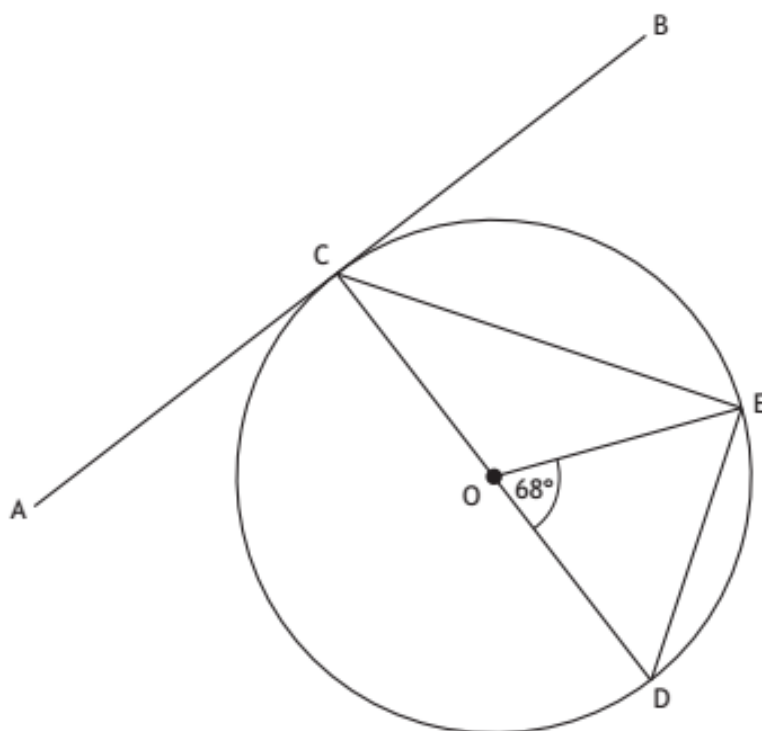
The diagram below represents the snowman.



- The head is a small circle, centre S , with diameter 15 centimetres
- The body is part of a larger circle, centre T
- The point T lies on the circumference of the small circle
- The points A and B lie on the circumferences of both circles

Calculate CD , the height of the snowman.

The diagram below shows a circle with centre O.



AB is a tangent to the circle at the point C.

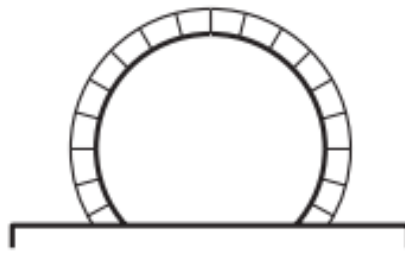
CD is a diameter of the circle.

Angle EOD is 68° .

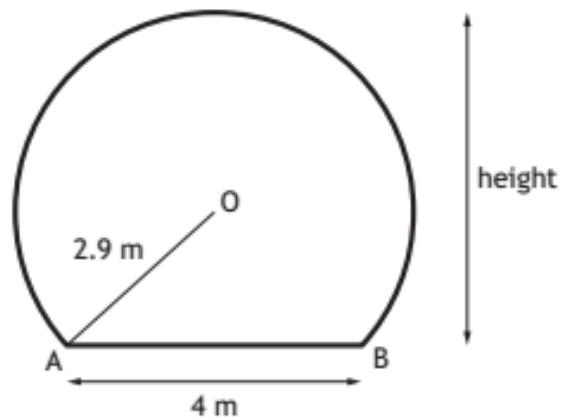
Calculate the size of angle ACE.

3

A train tunnel has a circular cross-section with a horizontal floor.



A diagram of the cross-section is shown below.



- The centre of the circle is O.
- Chord AB is 4 metres.
- The radius OA is 2.9 metres.

Calculate the height of the tunnel.