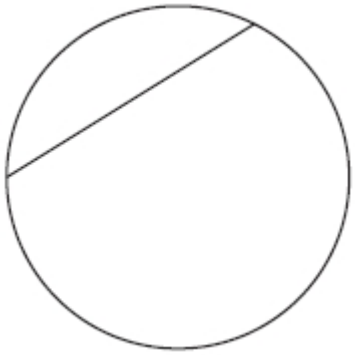
Foundation tier unit 17 check in test

Calculator

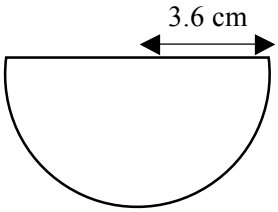
Q1. What is the mathematical name for the straight line inside this circle?



Q2. A circle has a diameter of 140 cm.
Work out the circumference of the circle.
Give your answer correct to 3 significant figures.

Q3. Work out the radius of a circle with circumference 80 cm.
Use $\pi = 3.142$
Give your answer correct to 1 decimal place

Q4. The diagram shows a semicircle with radius 3.6 cm.
Find the perimeter of the semicircle.
Give your answer correct to 3 significant figures.



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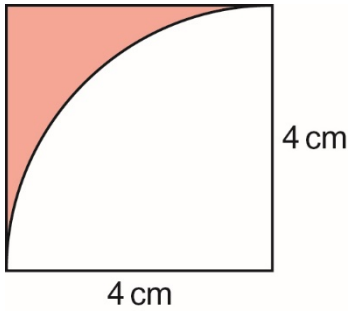
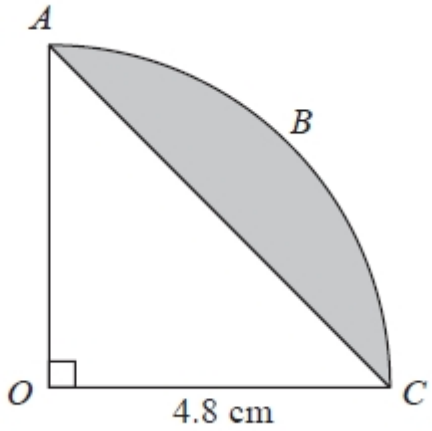
Q5. The diagram shows a quarter circle inside a square.



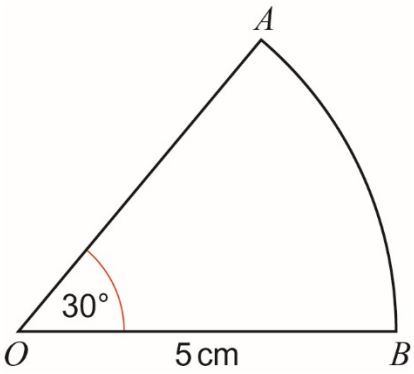
Calculate the area of the shaded region.
Write your answer in terms of π.

Q6. The arc ABC is a quarter of a circle with centre O and radius 4.8 cm.
AC is a chord of the circle.



Work out the area of the shaded segment.
Give your answer correct to 3 significant figures.

Q7. OAB is the sector of a circle with centre O and radius 5 cm.



Work out the perimeter of sector OAB.
Give your answer correct to 3 signficant figures.

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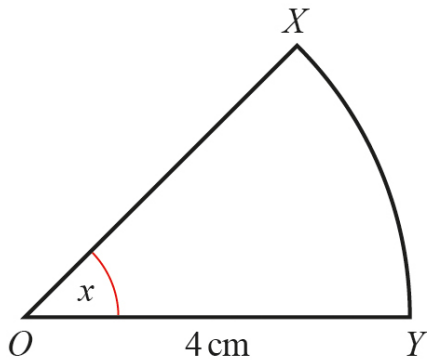
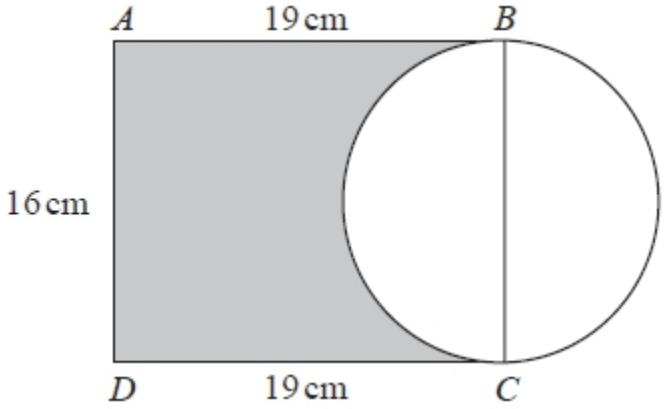
Q8. *OXY* is the sector of a circle with centre *O* and radius 4 cm.
The area of the sector is 6.28 cm².



Find the value of *x*.
Give your answer correct to the nearest degree.

Q9. Here is a diagram showing a rectangle, *ABCD*, and a circle.



BC is a diameter of the circle.

Calculate the percentage of the area of the rectangle that is shaded.
Give your answer correct to 1 decimal place.

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Q10. The diagram shows a container.

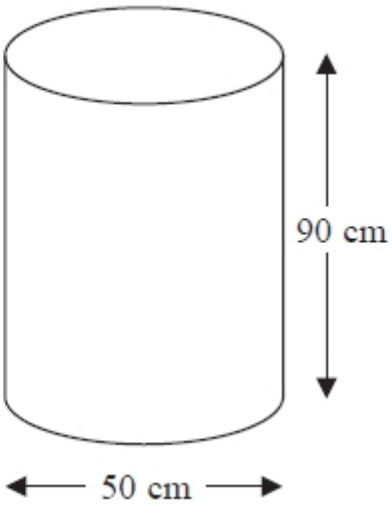

Diagram **NOT** accurately drawn

The container is in the shape of a cylinder.
The container is empty.

Jacques has a bucket.
He is going to use the bucket to fill the container with water.
The bucket holds 10 litres of water.

How many buckets of water does Jacques need to fill the container?
You must show your working.

(1 litre = 1000 cm^3)

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Topics listed in objectives

- Recall the definition of a circle and identify, name and draw parts of a circle including tangent, chord and segment;
- Recall and use formulae for the circumference of a circle and the area enclosed by a circle circumference of a circle = $2\pi r = \pi d$, area of a circle = πr^2;
- Use $\pi \approx 3.142$ or use the π button on a calculator;
- Give an answer to a question involving the circumference or area of a circle in terms of π;
- Find radius or diameter, given area or perimeter of a circles;
- Find the perimeters and areas of semicircles and quarter-circles;
- Calculate perimeters and areas of composite shapes made from circles and parts of circles;
- Calculate arc lengths, angles and areas of sectors of circles;
- Find the surface area and volume of a cylinder;
- Find the surface area and volume of spheres, pyramids, cones and composite solids;
- Round answers to a given degree of accuracy.

Answers

Q1. chord
Q2. 440 cm
Q3. 12.7 cm
Q4. 18.5 cm
Q5. $16 - 4\pi$ cm²
Q6. 6.58 cm²
Q7. 12.6 cm
Q8. 45°
Q9. 66.9%
Q10. 18 buckets

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