

National 5 Maths Practice Paper C

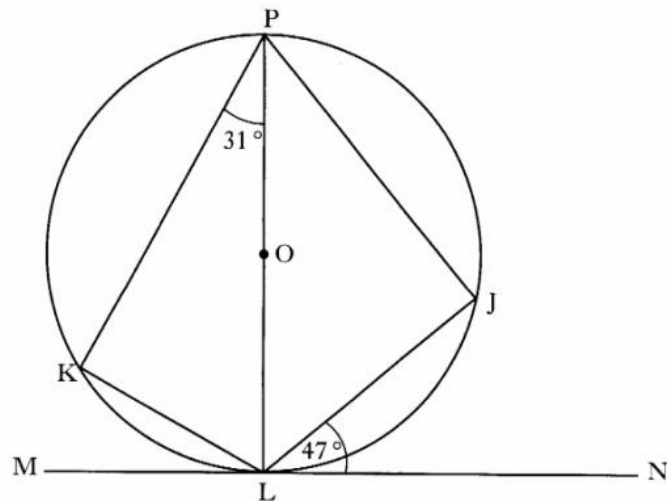
Paper 2

You may use a calculator

1. Bacteria in a test-tube increase at the rate of 4.6% per hour.
At 12 noon, there are 50 000 bacteria.
At 5 pm, how many bacteria will be present?
Give your answer correct to 3 significant figures.

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2.



The tangent, MN, touches the circle, centre O, at L.
Angle JLN = 47°
Angle KPL = 31°

Find the size of angle JLK.

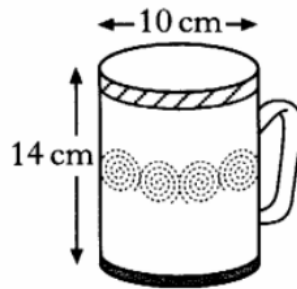
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3. Change the subject of the formula

$$y = ax^3 + c \quad \text{to } x.$$

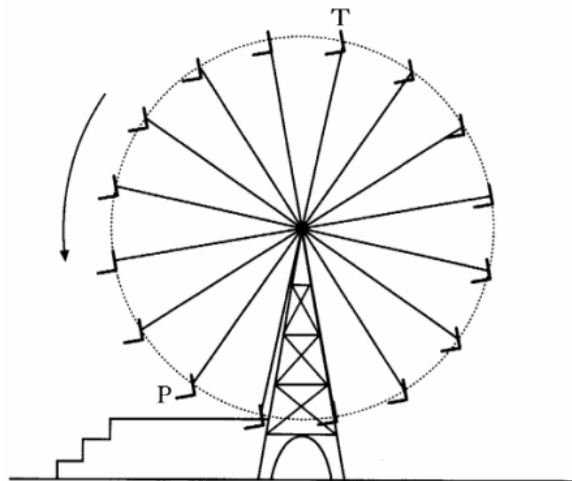
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4. A mug is in the shape of a cylinder with diameter 10 centimetres and height 14 centimetres.



- (a) Calculate the capacity of the mug. 2
- (b) 600 millilitres of coffee are poured in.
Calculate the depth of the coffee in the mug. 3

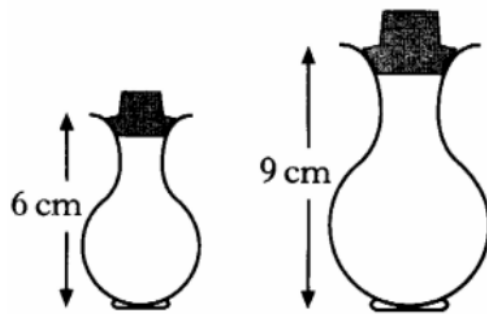
5. The diagram below shows a big wheel at the fairground.



The wheel has 16 chairs equally spaced on its circumference.
The radius of the wheel is 9 metres.

As the wheel rotates in an anticlockwise direction, find the distance a chair travels in moving from position T to position P in the diagram.

7. Two perfume bottles are mathematically similar in shape.



The smaller one is 6 centimetres high and holds 30 millilitres of perfume.
The larger one is 9 centimetres high.

What volume of perfume will the larger one hold?

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9. A pony shelter is part of a cylinder as shown in figure 1.
It is 6 metres wide and 2 metres high.

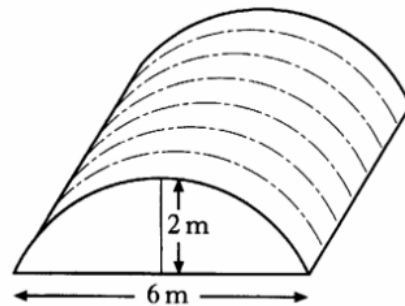


Figure 1

The cross-section of the shelter is a segment of a circle with centre O, as shown in figure 2.

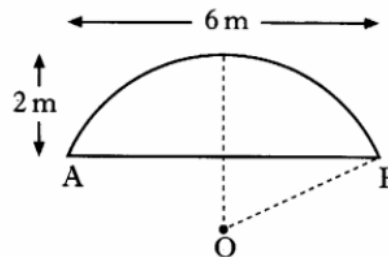


Figure 2

OB is the radius of the circle.

Calculate the length of OB.

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