19. A sphere of radius 6·5 cm has the same volume as a right circular cone of height 9·4 cm. Calculate the radius of the cone.

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[5]

5. *(a)* A rod has a uniform circular cross-section of radius 2·6 cm and a length of 95 cm. Calculate the volume of the rod.

[3]

(b) The rod has a mass of 8·6 kg. Calculate the density of the material from which the rod is made, giving your answer in g/cm^3.

[3]

19. A sphere of radius 6·5 cm has the same volume as a right circular cone of height 9·4 cm. Calculate the radius of the cone.

[5]

7.

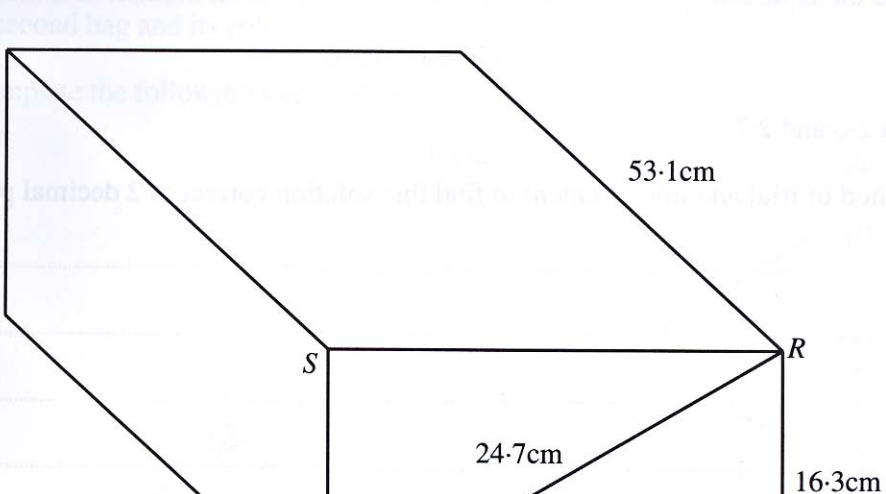

Diagram not drawn to scale.

The diagram shows a cuboid of length 53·1 cm. The cross-section, $PQRS$, is such that $PR = 24{\cdot}7$ cm and $QR = 16{\cdot}3$ cm.

(a) Calculate the length of PQ.

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[3]

(b) The density of the material from which the cuboid is made is 4·3 g/cm^3. Calculate the mass of the cuboid in kilograms.

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[3]

15. A solid metal cone has a height of 80 cm and radius of 30 cm. A smaller cone of height 20 cm is obtained by cutting off the top of the original cone.

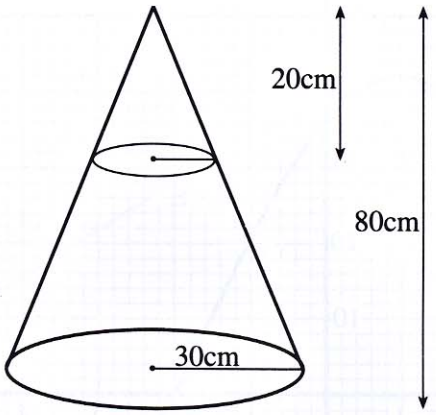

Diagram not drawn to scale.

(a) Calculate the volume of the smaller cone.

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[3]

(b) The smaller cone is melted down and recast as 20 identical cylinders. The length of each cylinder is 1·8 cm. Calculate the radius of each cylinder, giving your answer to an appropriate degree of accuracy.

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[4]

22. The diagram shows a circle with centre O and chord JK.

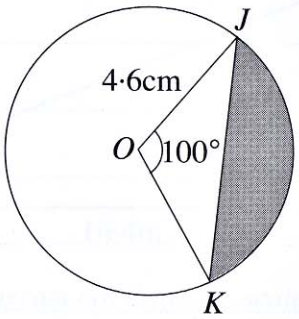

Diagram not drawn to scale.

The circle has a radius of 4·6 cm and $\hat{JOK} = 100°$.
Calculate the area of the shaded region.

[6]

20.

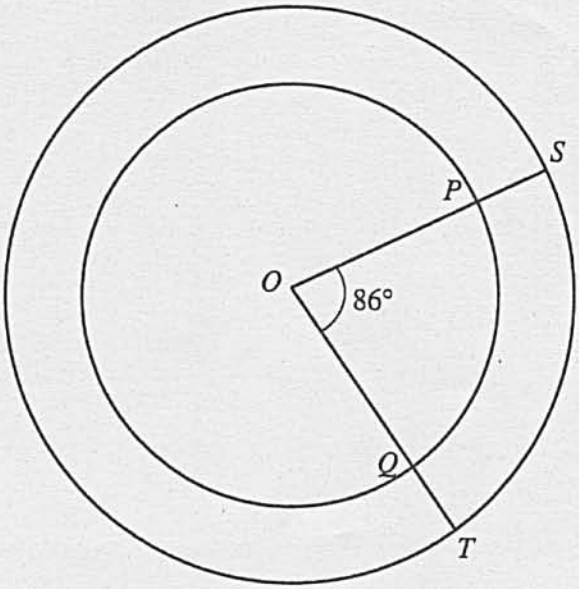

Diagram not drawn to scale.

The diagram shows two concentric circles with centre O.
OQ and OP are radii of the smaller circle.
OS and OT are radii of the larger circle.
The radius of the larger circle is 7·3 cm.
$P\hat{O}Q = 86°$.

(a) Calculate the area of sector SOT.

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[2]

(b) The area of the sector POQ is 20·3 cm^2. Calculate the radius of this sector POQ.

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[3]

(c) Calculate the area of triangle SOQ.

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[3]