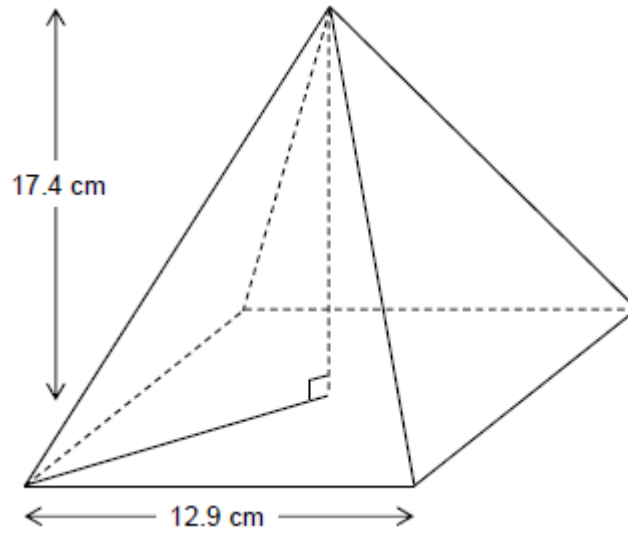


Q1.

This pyramid has a square base.



Volume of a pyramid = $\frac{1}{3}$ × area of base × perpendicular height

Work out the volume of the pyramid.

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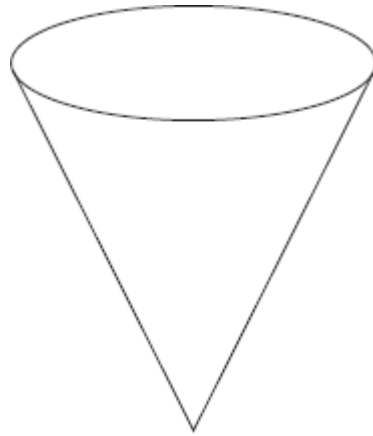
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Answer cm³

(Total 3 marks)

Q2.

The diagram shows an empty cone of radius 1.5 metres and height 4 metres.



Sand is poured into the cone at a rate of 0.2 m^3 per minute.

Work out the number of minutes it takes to fill the cone.

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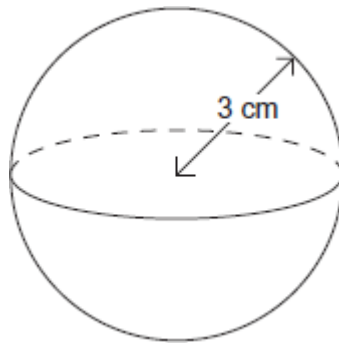
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Answer minutes

(Total 3 marks)

Q3. The diagram shows a sphere made of wood.



The radius of the sphere is 3 cm
The mass of the sphere is 85 grams.

Work out the density of the wood.

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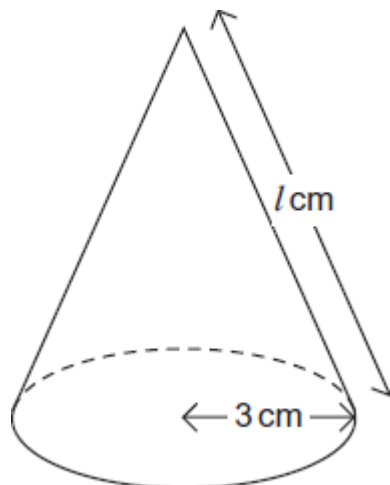
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Answer grams / cm³

(Total 3 marks)

Q4. The cone below has radius 3 cm and slant height l cm.



The **total** surface area, including the base, is $24\pi \text{ cm}^2$.

Work out the length l .

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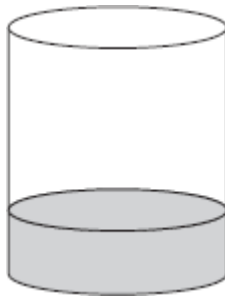
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Answer cm

(Total 3 marks)

Q5. The cylindrical tank is one-quarter full of oil.



1 litre = 1000 cm^3

The radius of the base of the cylinder is 90 cm.

The height of the cylinder is 200 cm.

Work out the number of litres of oil in the tank.

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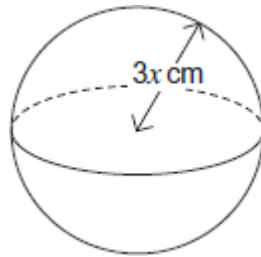
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Answer litres

(Total 4 marks)

Q6.(a) A sphere has radius $3x$ cm.



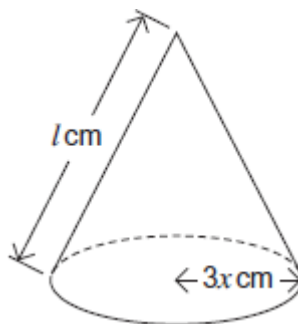
Write down an expression for the surface area of the sphere in terms of π and x .
Give your answer in its simplest form.

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Answer cm^2

(2)

(b) A cone has base radius $3x$ cm and slant height l cm.



The curved surface area of the cone is equal to the surface area of the sphere.

Express l in terms of x .
Give your answer in its simplest form.

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$I = \dots\dots\dots$

(2)
 (Total 4 marks)

Q7. $ABCD$ is a triangular based pyramid.
 The base BCD is a right-angled triangle.

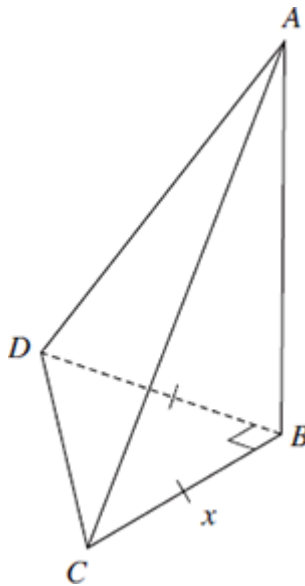
A is directly above B .

$BC = BD$

$AB = 2 \times BC$

The volume of the pyramid is 72 cm^3 .

The formula for the volume of a pyramid is $\frac{1}{3} \times \text{base area} \times \text{height}$.



Calculate the length of BC , labelled x in the diagram.

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Answer cm

(Total 3 marks)