FluidMaths

GCSE Mathematics (Grade 9-1)

Problem Solving
### Pythagoras Theorem and Trig Set 3
3D
Questions

Some useful strategies in problem-solving

- Read the question carefully
- Sketch a diagram where applicable
- Take note of key information
- Write down any formulae you may need
- Tackle the problem in bite-size rather than as a whole
- Concentrate on the part of the problem you understand and start from there
- Collaborate with a partner and share ideas
- Use a dictionary to find the meaning of any confusing words
- Check that your answers make sense in the context of the question

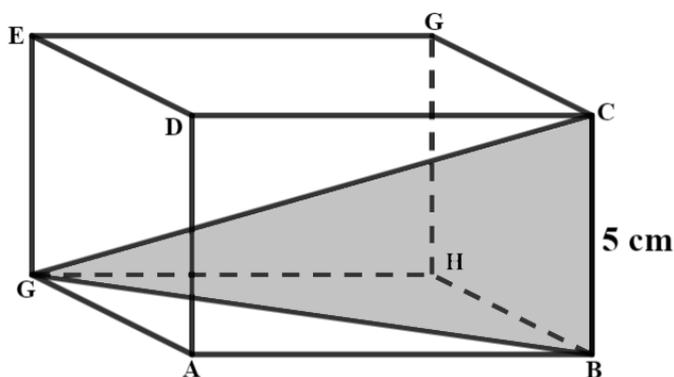| 1	Here is a cube
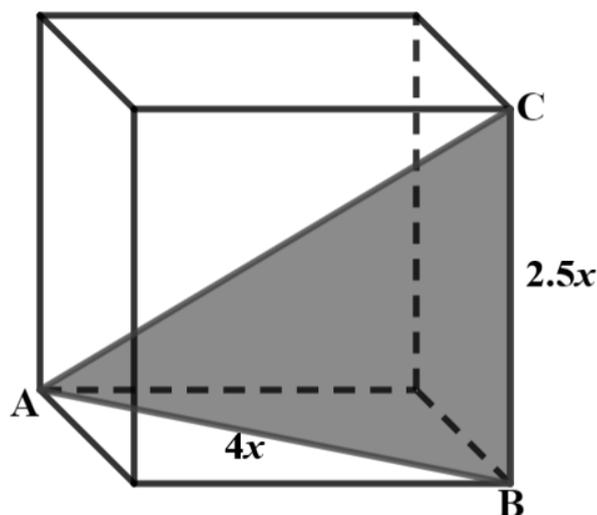
ABC is the shaded triangle and right-angled at B
AB = 4x
BC = 2.5x
Given that the area of triangle ABC is 31.25 cm²,
Calculate the length of AC.
Give your answer to 3 significant figures**[4marks]**

2	Here is a cuboid

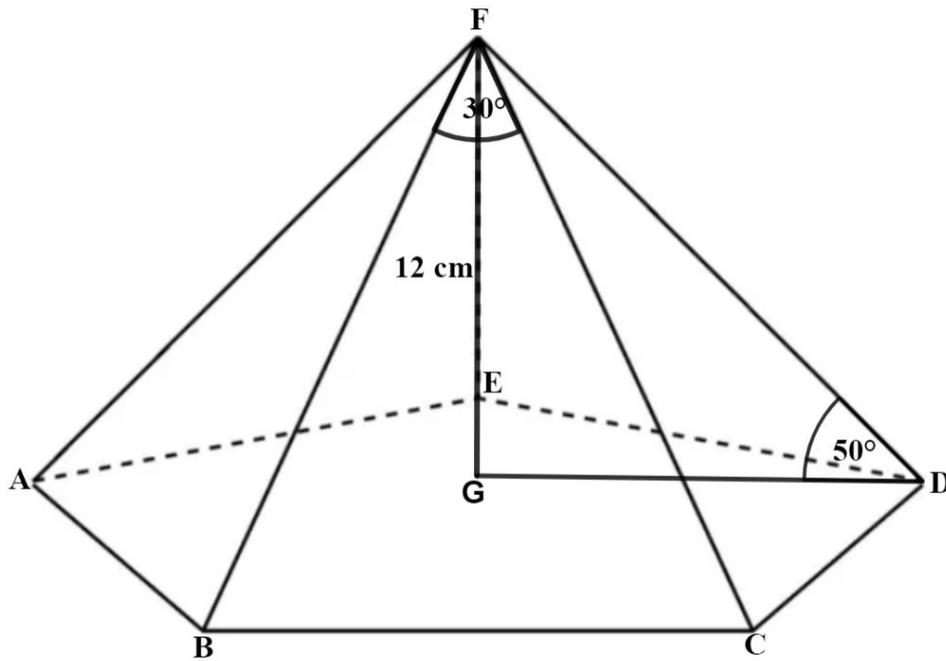Triangle BCG is shaded and right-angled at B
The volume of the cuboid is 400 cm³
The face ABHG is a square

    a)   Given that the area of the shaded triangle is $\sqrt{k}$,
what is the value of the whole number k?   **[6marks]**
    b)   Calculate the size of angle BCG   **[2marks]**

3 Here is a pentagonal pyramid

AF=BF=CF=DF=EF

The pentagonal base ABCDE has an area of 75 cm²

Angle ADG = 50°

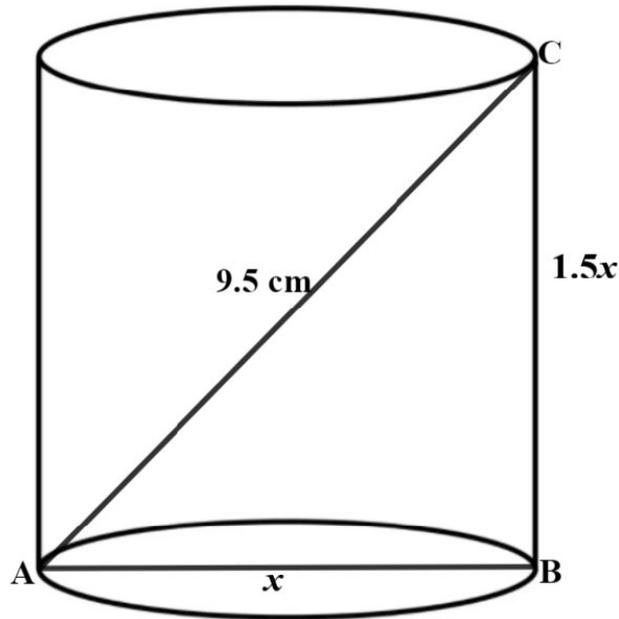Angle AFC = 30°

The height FG = 12 cm

Calculate the surface area of the pyramid

[5marks]

3

4 **Here is a cylinder**

AB = x
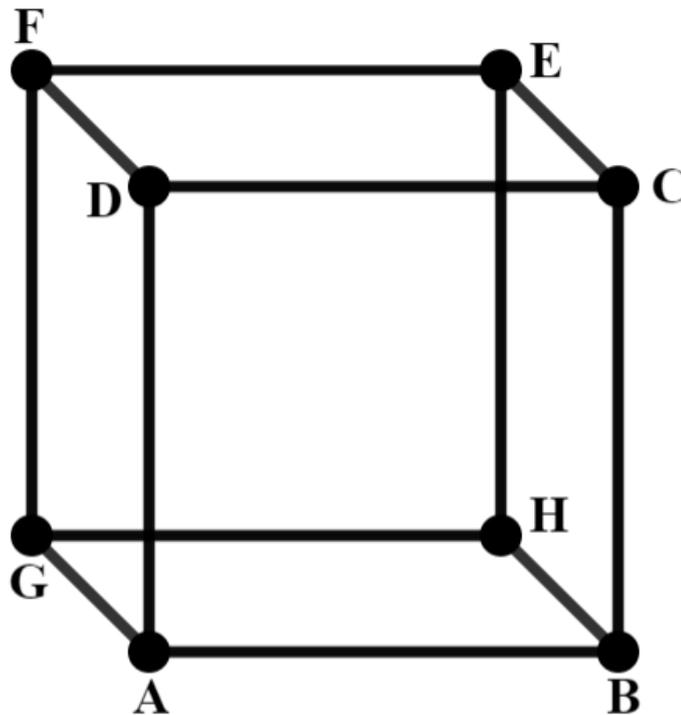BC = 1.5x
AC = 9.5 cm
Calculate the volume of the cylinder.
Give your answer to 1 decimal place

[4marks]

5 Here is a cube

The cube is made using copper strips
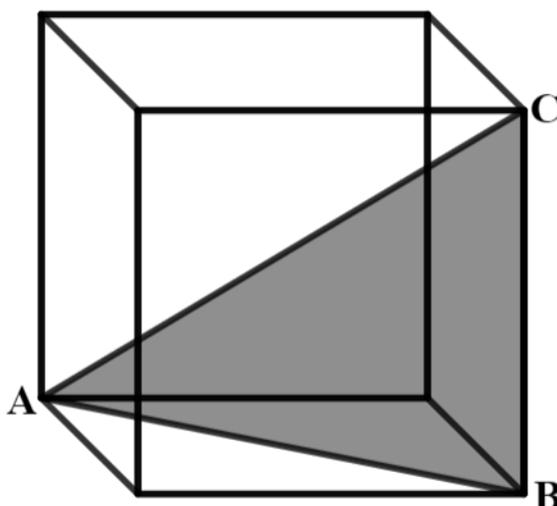The strips are held together using rivets at the vertices
Copper cost £45 per meter
Rivets come in packs of 3 for £1.95 per pack
Given that the diagonal AH = 5 m, calculate the cost of making the cube.
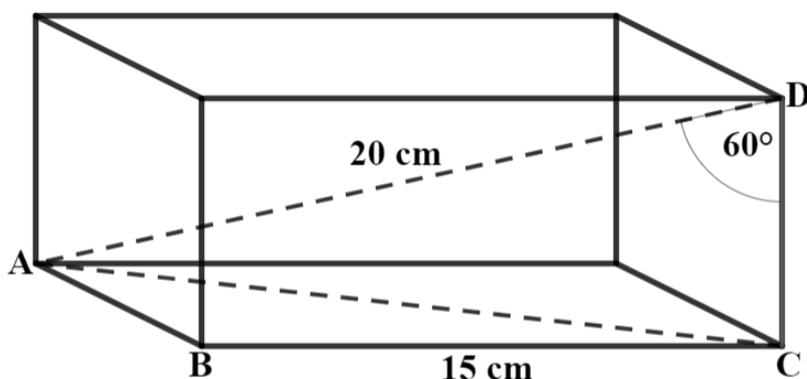
[6marks]

6 Here is a cube

Given that the volume of the cube is 512 cm³, calculate
   a) The exact area of triangle ABC   **[3marks]**
   b) The size of angle ACB.   **[2marks]**
Give your answer to 1 decimal place

7 Here is a cuboid

AC = 20cm
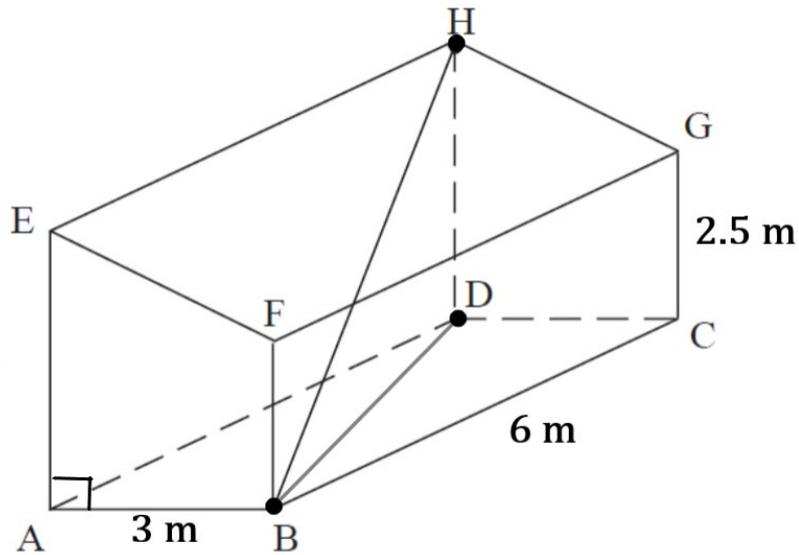BC = 15 cm
Angle ACB = 60°
Calculate the surface area of the cuboid
Give your answer in the form $a + b\sqrt{c}$
Where a, b and c are integers

[6marks]

8 | The diagram shows a garden shed in the form of a prism
ABFE is a trapezium

AB = 3 m
BC = 6 m
GC = 2.5 m
Given that the area of the trapezium is 9.75 m², calculate the size of angle DBH.
Give your answer to 1 decimal place.

[5marks]