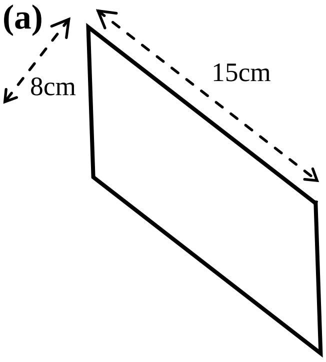
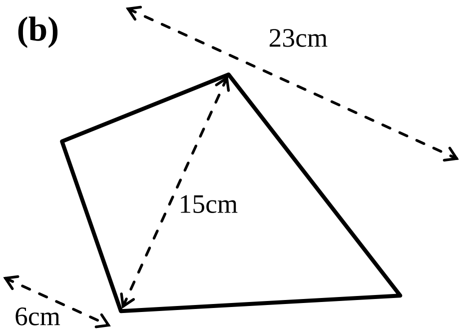
Calculating the area of a parallelogram, kite and trapezium

1. Calculate the areas of these shapes: [2, 2, 2]

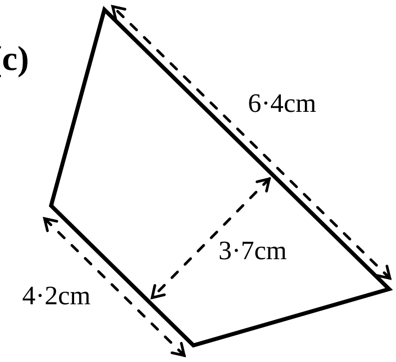
(a)



(b)

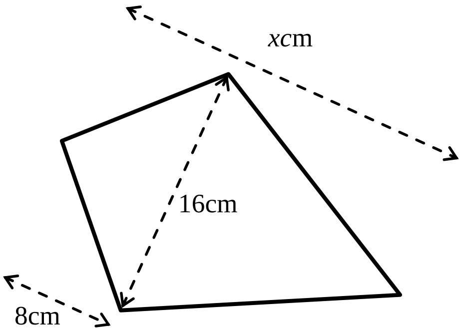


(c)

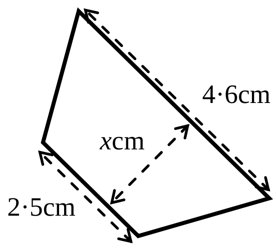


2. The areas of these shapes have been given. Calculate the value of x in each one. [2, 2, 2]

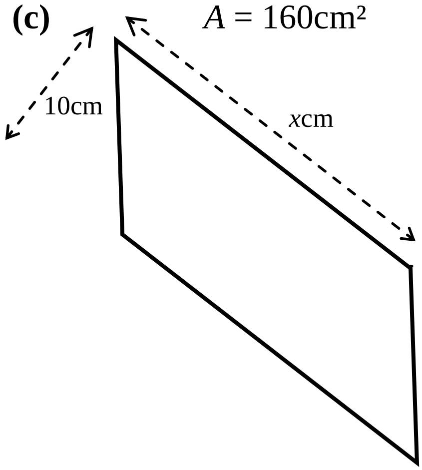
(a) $A = 96\text{cm}^2$



(b) $A = 42{\cdot}6\text{cm}^2$

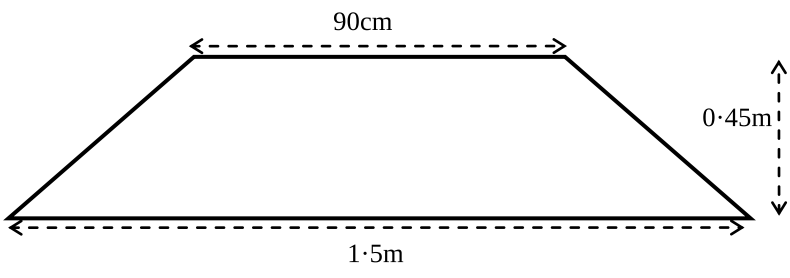


(c) $A = 160\text{cm}^2$



3. A window ledge is shaped like a trapezium with dimensions as shown in the diagram.

It is to be tiled with tiles which cost £12.40 per square metre.



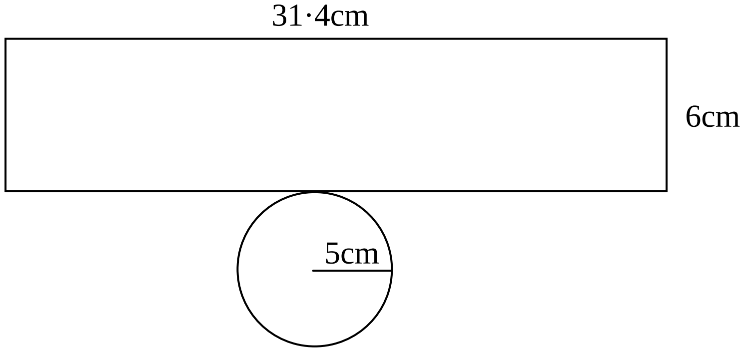
Calculate the cost of tiling the window ledge. [4]

[16 marks]

Investigating the surface of a prism

- **In this exercise, answers should be given correct to one decimal place where necessary.**
- **Use $\pi = 3{\cdot}14$ in all calculations.**

1. A container designed to hold mustard is open ended and has the net shown in the diagram below

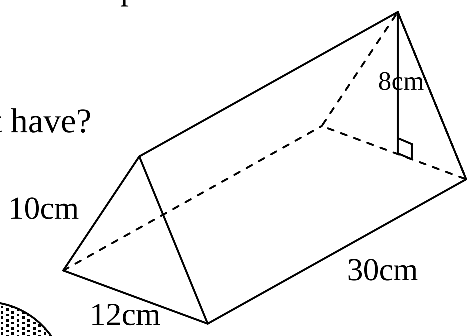


Calculate the area of this net. [5]

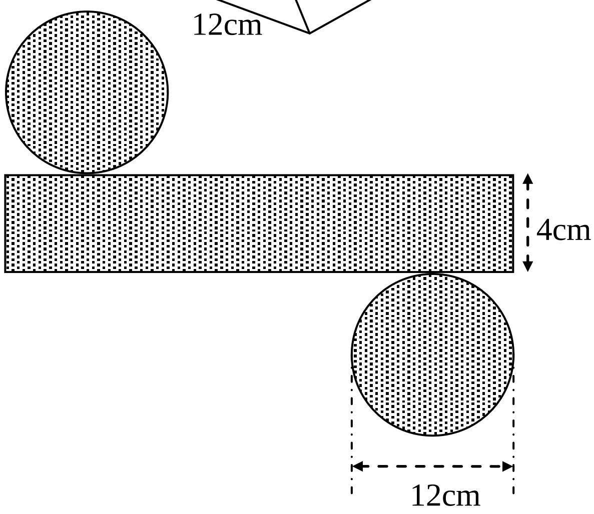
2. **(a)** What is the mathematical name given to this 3D shape? [1]

(b) How many faces, edges and vertices does it have? [3]

(c) Calculate the surface area of it. [4]



3. A gift box is made up from the net shown in the diagram.



(a) What is the mathematical name given to the 3D shape made from this net? [1]

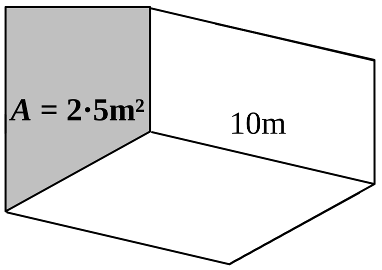
(b) Given that the circles in the net have diameter 12cm and the height of the 3D shape is 4cm, calculate the curved surface area of the shape. [4]

[18 marks]

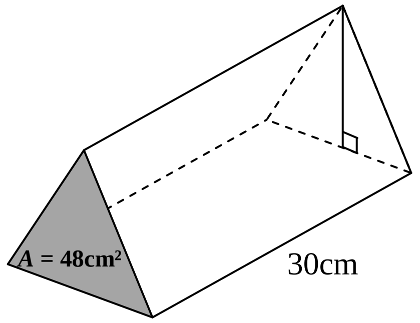
Calculating the volume of a prism

1. Calculate the volumes of these prisms.

(a)



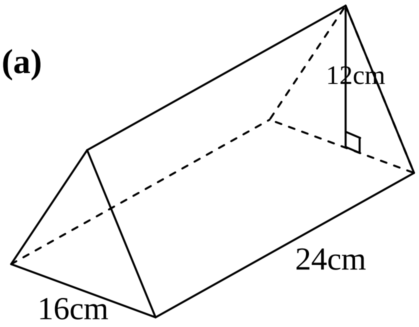
(b)



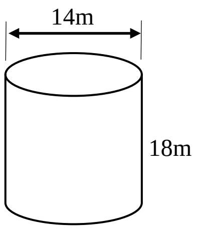
[2, 2]

2. Calculate the volumes of these prisms:

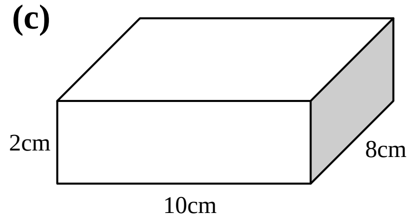
(a)



(b)

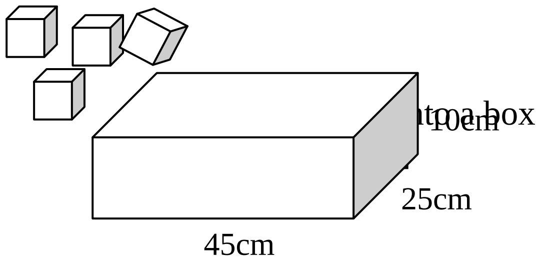


(c)



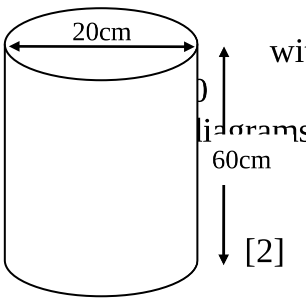
[3, 2, 2]

3. Jake has 100 cube shaped building blocks of side 5 centimetres which he is trying to pack into a box measuring 45cm by 25cm by 10cm.



Will all the blocks fit in the box? If not, how many will he be left with?

4. A water container in the shape of a cylinder with diameter 20 centimetres and height 60 centimetres is shown below. [diagrams are not drawn to scale]

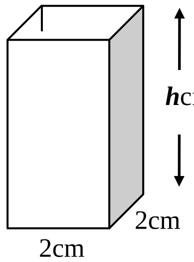


(a) Calculate the volume of the cylinder, in cm^3. [take $\pi = 3{\cdot}14$] [2]

(b) The cylinder is full of water. The water is then poured from the cylinder into 1000 small cuboid-shaped containers which will be frozen to produce small ice blocks.

The water in the cylinder **exactly fills** the 1000 containers.

Each cuboid has a square base of side 2cm and a height of ***h*** cm.
Calculate the height (***h***) of each small container.



[3]

[20 marks]