**1.** Specimen/2025/Paper_01/No14
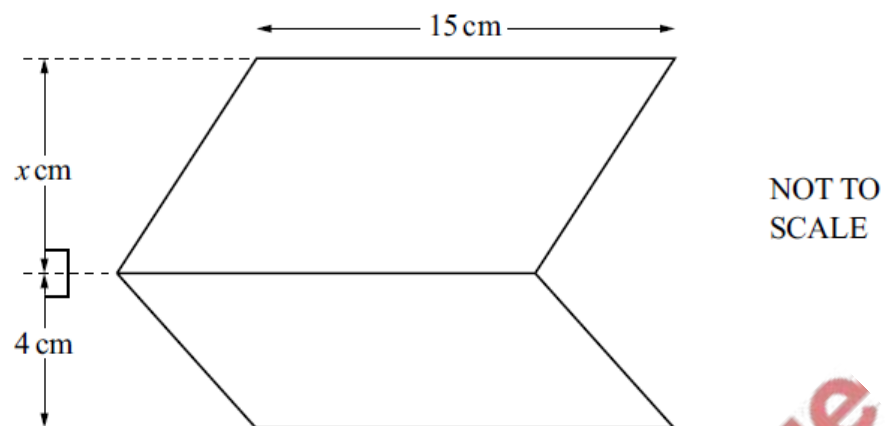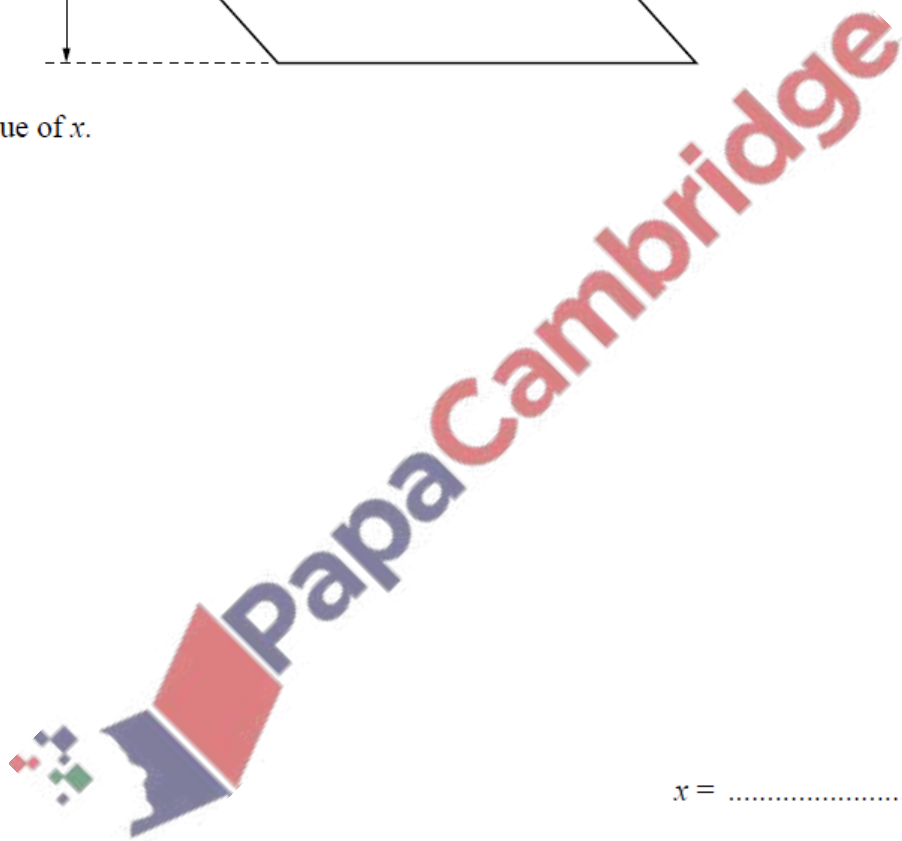
The diagram shows a shape made from two different parallelograms.
The shape has a total area of $210 \, \text{cm}^2$.

NOT TO SCALE
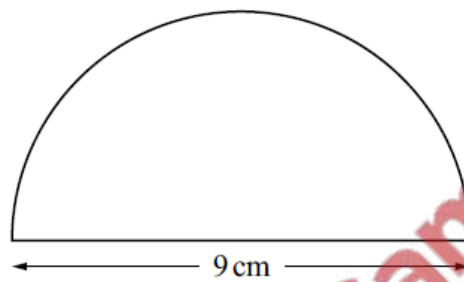
Find the value of $x$.

$x =$ .............................................. [4]

**2.**

Convert $0.17\,\text{m}^2$ into $\text{cm}^2$.

.......................................... $\text{cm}^2$ [1]

**3.**

NOT TO SCALE

9 cm

The diagram shows a semicircle with diameter 9 cm.

Calculate the total perimeter of this semicircle.
Give your answer in exact form.

.......................................... cm [3]

**(c)** The area of the circle is $43.5\,\text{cm}^2$.

Calculate the radius of the circle.
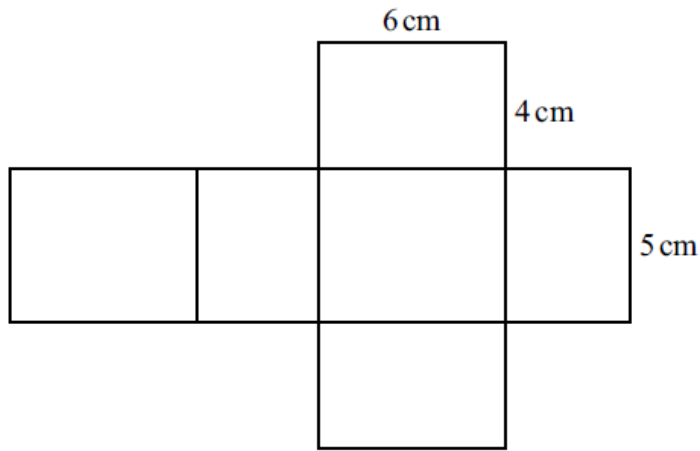
.............................................. cm [2]

**(d)** The diameter of a different circle is $6.4\,\text{cm}$.

Calculate the circumference of this circle.
Give your answer in millimetres.

.............................................. mm [3]

**(a)**

6 cm

4 cm

5 cm
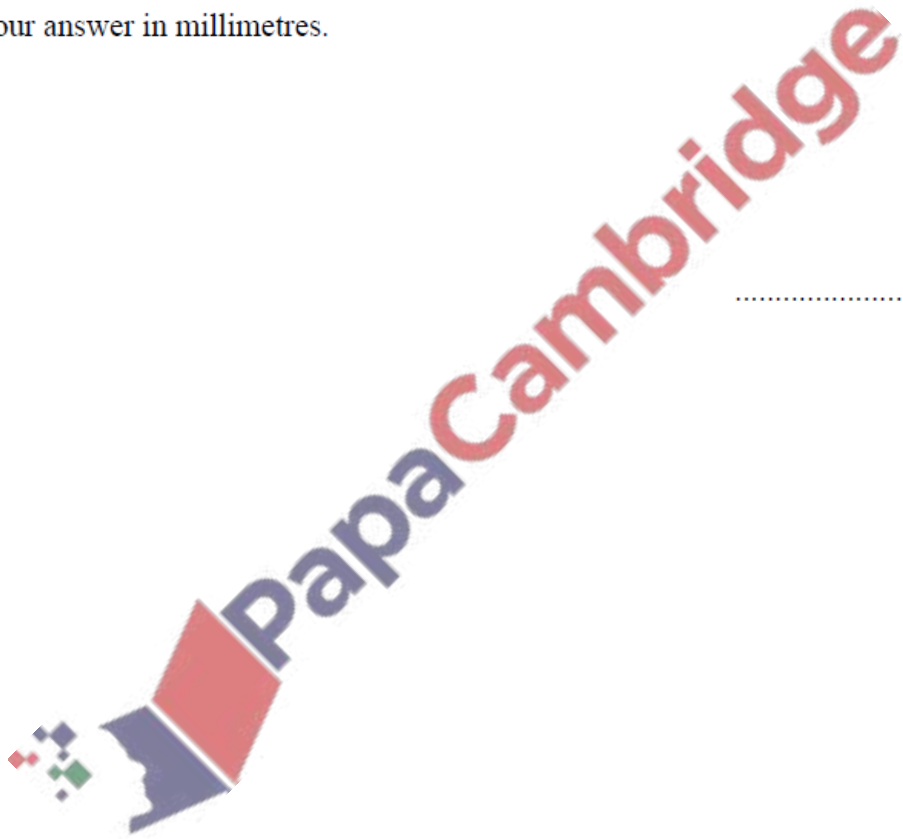
NOT TO
SCALE

The diagram shows the net of a cuboid.

**(i)** Find the volume of the cuboid.

.......................................... cm$^3$ [2]

**(ii)** Show that the total surface area of the cuboid is 148 cm$^2$.

[2]

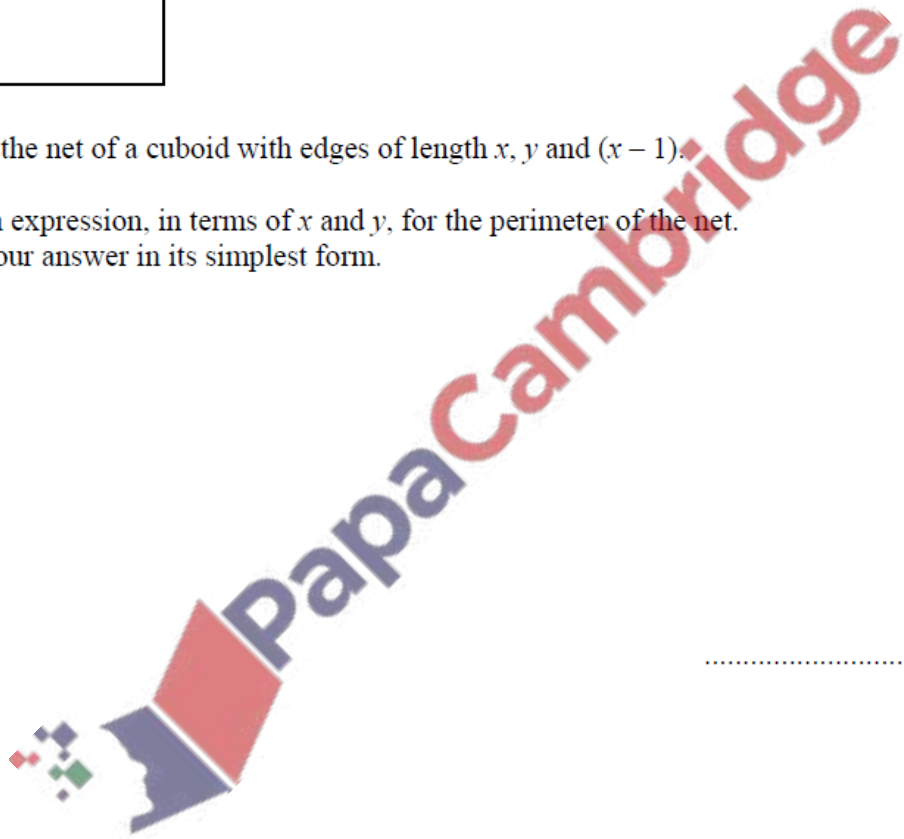**(iii)** Calculate the total length of the edges of the cuboid.

.......................................... cm [2]

4

**(b)** In this part, all measurements are in centimetres.



NOT TO SCALE
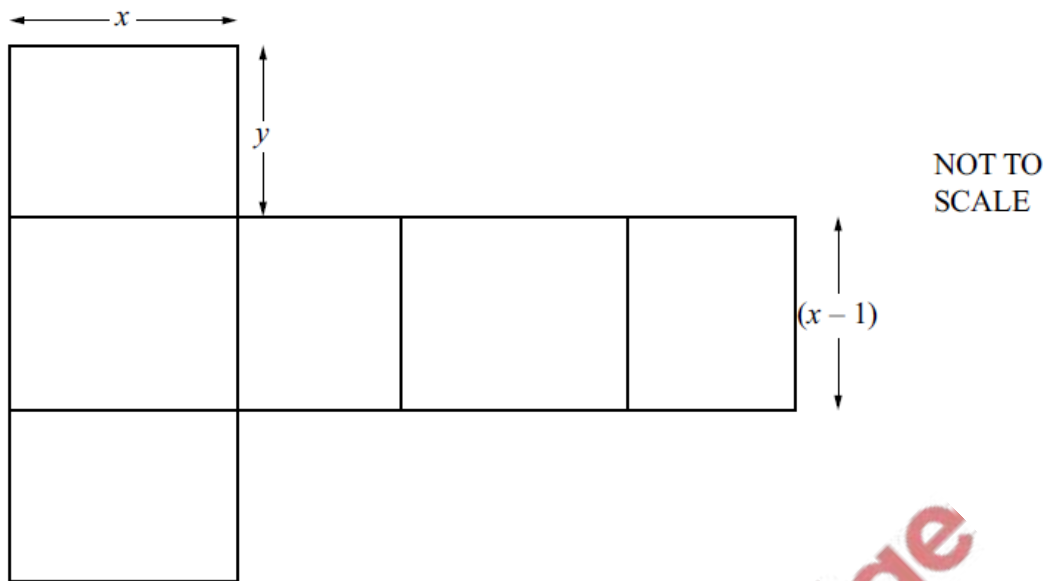
This is the net of a cuboid with edges of length $x$, $y$ and $(x - 1)$.

Find an expression, in terms of $x$ and $y$, for the perimeter of the net.
Give your answer in its simplest form.

.................................................. [3]
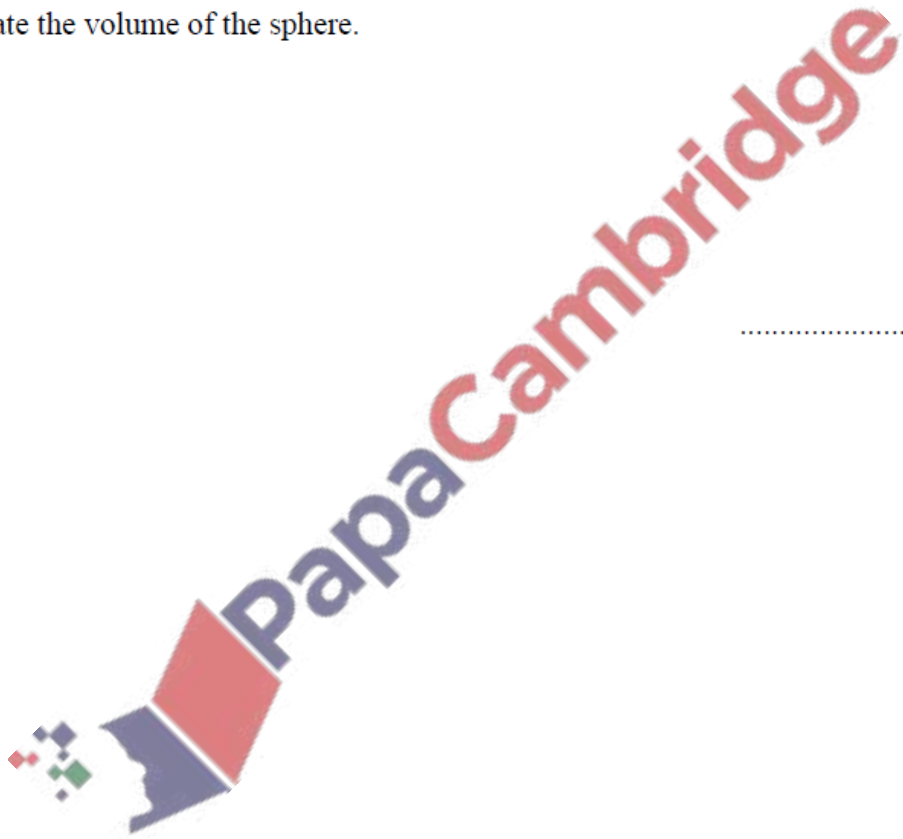
A sphere has a surface area of $177\,\text{cm}^2$.

**(a)** Calculate the radius of the sphere.

............................................ cm [2]

**(b)** Calculate the volume of the sphere.

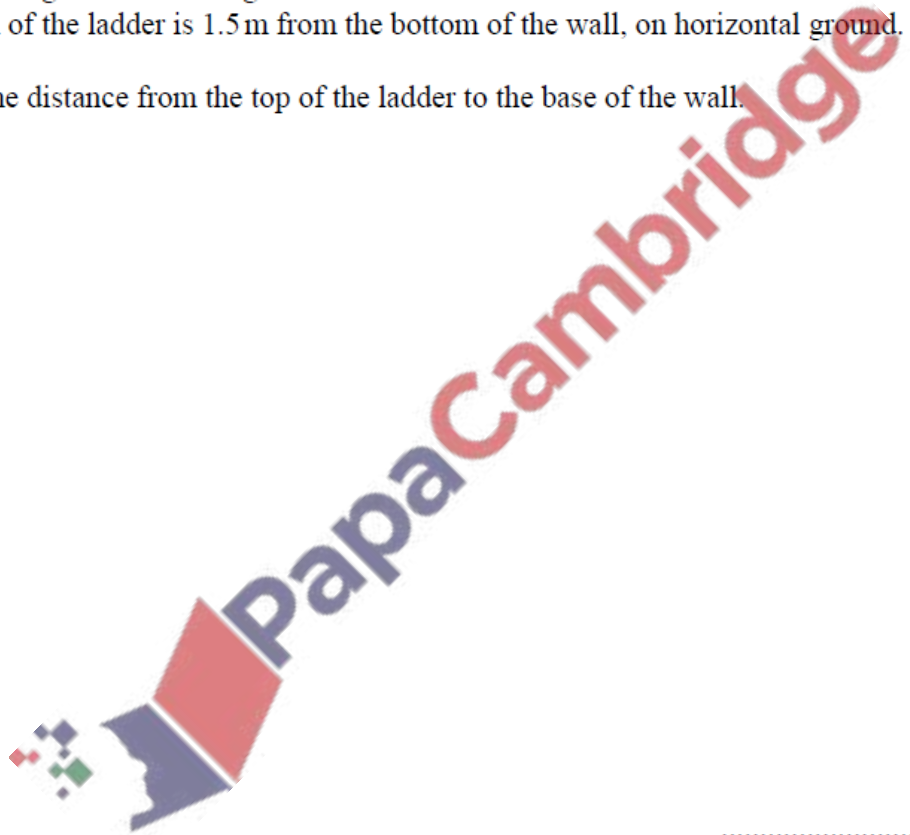............................................ $\text{cm}^3$ [2]

NOT TO SCALE

5.6 m

1.5 m
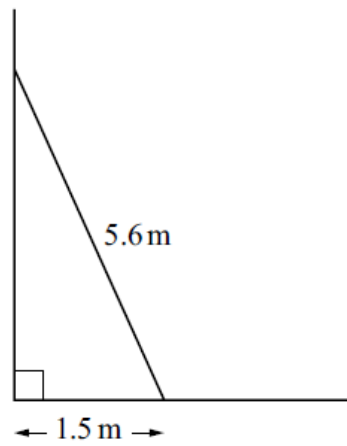
A ladder of length 5.6 m rests against a vertical wall.
The bottom of the ladder is 1.5 m from the bottom of the wall, on horizontal ground.

Calculate the distance from the top of the ladder to the base of the wall.

.............................................. m [3]

**8.**

A solid metal cuboid has a volume of $600 \, \text{cm}^3$.

(a) The base of the cuboid is $10 \, \text{cm}$ by $12 \, \text{cm}$.

Calculate the height of the cuboid.

..................................... cm [2]
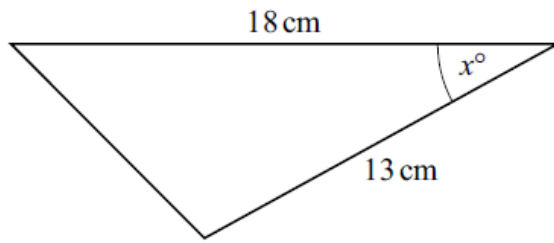
(b) The solid metal cuboid is melted and made into 1120 spheres, each with radius $0.45 \, \text{cm}$.

Find the volume of metal **not** used in making these spheres.

..................................... $\text{cm}^3$ [2]

**9.**

18 cm

$x°$

13 cm
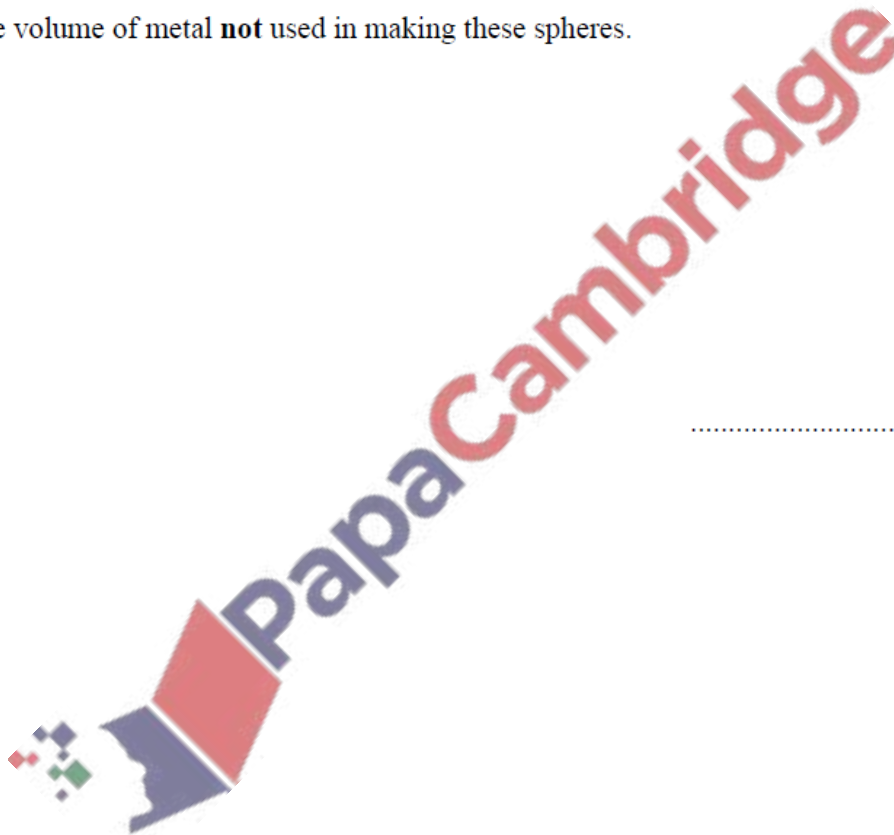
NOT TO SCALE

The area of the triangle is $50\,cm^2$.

Calculate the value of $\sin x$.

$\sin x =$ .............................................. [2]

**10.**

The cross-section of a prism is an equilateral triangle of side 6 cm.
The length of the prism is 20 cm.

Calculate the total surface area of the prism.

............................................. $cm^2$ [4]