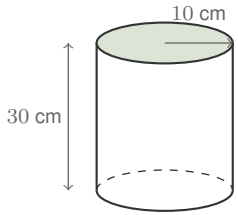
Use the π key unless a question says otherwise. Give answers to one decimal place where they are not exact. **Before you calculate anything, write down how many circles are in the surface.**

1 A tin has radius 10 cm and height 30 cm. A paper label wraps exactly once round it and does not cover the ends. Find the area of the label.

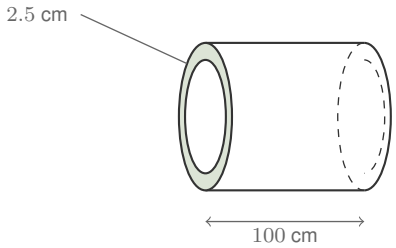


(a) How many circles? (1)

(b) Find the area (2)

(3 marks)

2 A steel pipe has radius 2.5 cm and length 100 cm. It is open at both ends. Find the area of steel in its surface.

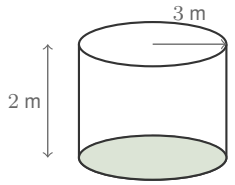


(a) How many circles? (1)

(b) Find the area (2)

(3 marks)

3 An open cylindrical tank has radius 3 m and height 2 m. Find the area of metal needed to make it.



(a) How many circles? (1)

(b) Find the curved surface area (2)

(c) Find the area of the base (1)

(d) Find the total area of metal (1)

(5 marks)

4 A closed tin has radius 4 cm and height 10 cm. Find the area of metal needed to make it.

(a) How many circles? (1)

(b) Find the total (3)

(4 marks)

5 A cup with no lid is a cylinder of radius 3.5 cm and height 9 cm. Find the area of its surface.

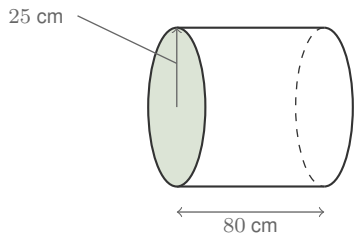
(a) How many circles? (1)

(b) Find the curved surface area (2)

(c) Find the total (2)

(5 marks)

6 A garden roller is a cylinder of radius 25 cm and width 80 cm.



(a) How many circles touch the ground? (1)

(b) **Find the area of ground the roller flattens in one complete turn.** (3)

(c) **Explain why the two flat ends are not part of your answer.** (2)

(6 marks)