Year 9 Circles, Area and Volume – Challenge

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Year 9 · Maths · Circles, Area, Surface Area and Volume · Level 3 Challenge · 8 questions

Name _____ **Date** _____

A. Think like a mathematician

1. Ivo finds the perimeter of a semicircle with radius 4 cm as ½ × 2 × 3.14 × 4 = 12.56 cm. Explain the mistake and find the perimeter.

Answer _____

2. A circle has diameter 12 cm. Gus works out its area as $3.14 \times 12^2 = 452.16$ cm^2. Explain the mistake and find the area.

Answer _____

3. Hana says 1 litre is the same as 1000 cm^3. Is Hana right? Explain.

Answer _____

4. Hana says a cylinder has infinitely many planes of symmetry. Is Hana right? Explain.

Answer _____

5. Explain why the volume of a cylinder with radius r and height h is $V = \pi r^2 h$.

Answer _____

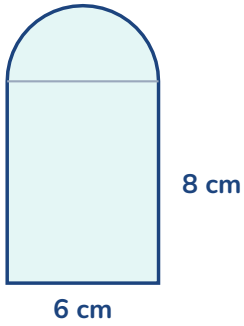
6. A water pipe has an inside radius of 1 cm and is 100 cm long. How many cm^3 of water fill the pipe? Use $\pi = 3.14$.

Answer _____

7. A cylindrical water tank has radius 20 cm and height 80 cm. How many litres does it hold when full? Use π = 3.14 and 1 litre = 1000 cm^3.

Answer _____

8. The shape is a rectangle 6 cm wide and 8 cm high with a semicircle on its top side. Find the area of the shape. Use π = 3.14.



Answer _____