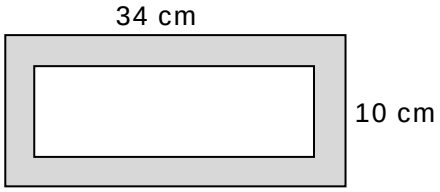
Basic Measurement Practice #6 (Extension)

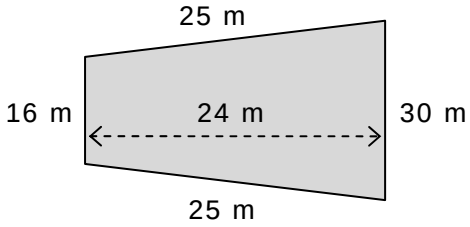
1.



All borders 2 cm wide

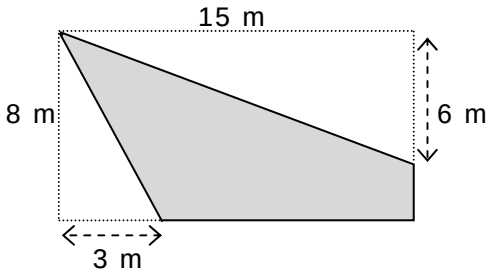
Area = ... Inner perimeter = ...

2.



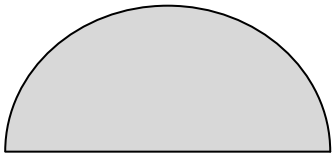
Area = ... Perimeter = ...

3.



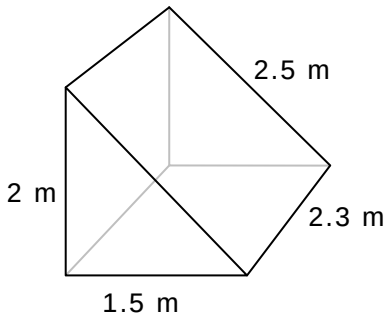
Area = ... Perimeter = ...

4.



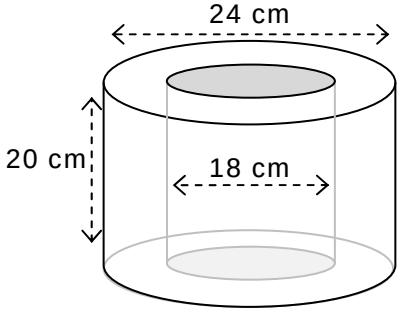
Area = ... Perimeter = ...

5.



Volume = ... Surface Area = ...

6.



Hollow: outer diameter = 24 cm, inner diameter = 18 cm

Volume = ... Surface Area = ...

Answers: Basic Measurement Practice #6 (Extension)

Area

Perimeter

1. base × height – base × height

   34 × 10 – 30 × 6 = **160 cm²**

   all sides added together

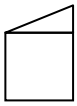
   30 + 30 + 6 + 6 = **72 cm**

2. average base × height

   $\frac{16+30}{2}$ × 24 = **552 m²**

   or rectangle + triangle

   (16 × 24) + (½ × 14 × 24) = **552 m²**

   all sides added together

   16 + 25 + 30 + 25 = **96 m**

3. rectangle – 2 triangles

   b × h – ½ × b × h – ½ × b × h

   15 × 8 – ½ × 8 × 3 – ½ × 15 × 6

   = **63 m²**

   (also two triangles diagonally, 12 by 8 and 2 by 15)

   2 horizontals + 2 diagonals

   12 + 2 + $\sqrt{a^2 + b^2}$ + $\sqrt{a^2 + b^2}$ (Pythagoras)

   12 + 2 + $\sqrt{8^2 + 3^2}$ + $\sqrt{15^2 + 6^2}$

   = **38.7 m**

4. ½ × π × radius²

   ½ × π × 5² = **39.27 m²**

   ½ × π × diameter + side

   ½ × π × 10 + 10 = **25.71 m**

Volume

Surface Area

5. base area × depth

   (½ × b × h) × d

   ½ × 1.5 × 2 × 2.3 = **3.45 m³**

   3 rectangle sides + 2 triangle ends

   (1.5 × 2.3) + (2.5 × 2.3) + (2 × 2.3) +

   + (½ × 2 × 1.5) + (½ × 2 × 1.5) = **16.8 m²**

6. base area × depth – base area × depth

   $(\pi \times r_o^2) \times d - (\pi \times r_i^2) \times d$

   $\pi \times 12^2 \times 20 - \pi \times 9^2 \times 20$

   = **3958.4 cm³**

   flat outside + flat inside + 2 ends

   $(\pi \times 24 \times 20) + (\pi \times 18 \times 20) +$

   $+ 2 \times [(\pi \times 12^2) - (\pi \times 9^2)]$

   = 3034.8 cm²