Outcome 1 – Surface Area of a Cube, Cuboid & Cylinder

Bronze example

Examples...

Calculate the surface area of a cube with sides 3 centimetres.

3 cm
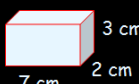
Calculate the area of 1 side

$3 \times 3 = 9$ cm^2

Multiply by 6

S.A. $= 6 \times 9 = 54$ cm^2

$$S.A. = 6 \times L^2$$

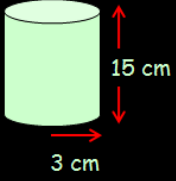### Silver example

Examples...

S.A. $= 2(LB + LH + BH)$

3 cm
2 cm
7 cm

Calculate the surface area of this cuboid.

Area of front face $= 7 \times 3 = 21$ cm^2
Area of back face $= 7 \times 3 = 21$ cm^2
Area of top face $= 7 \times 2 = 14$ cm^2
Area of bottom face $= 7 \times 2 = 14$ cm^2
Area of right side $= 3 \times 2 = 6$ cm^2
Area of left side $= 3 \times 2 = 6$ cm^2

Total Surface Area $=$ ‾‾82 cm^2‾‾

Gold example

S.A. $= 2(\pi r^2 + \pi rh)$
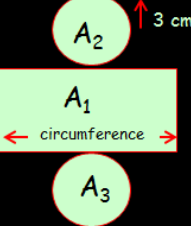
Examples...

Calculate the surface area of this cylinder.

What does the net look like?

15 cm

3 cm

A_2 — 3 cm

A_1 — circumference — 15 cm

A_3

1. Calculate circumference

$3 \cdot 14 \times 6 = 18 \cdot 84$ cm

2. Calculate area of rectangle

3. Calculate area of first circle

4. Calculate area of second circle

5. Add them all up

$A_1 = 18 \cdot 84 \times 15 = 282 \cdot 6$ cm^2

$A_2 = 3 \cdot 14 \times 3^2 = 28 \cdot 26$ cm^2

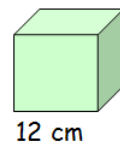$A_3 = 3 \cdot 14 \times 3^2 = 28 \cdot 26$ cm^2

Total S.A. $= 339 \cdot 12$ cm^2

Bronze Questions

1. Calculate the surface area of a cube with sides 7 millimetres.

7 mm
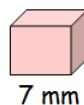
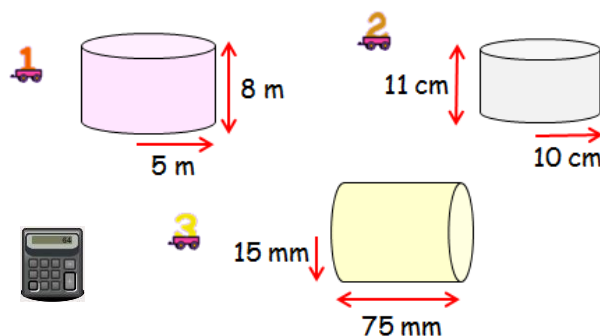2. Calculate the surface area of a cube with sides 12 centimetres.

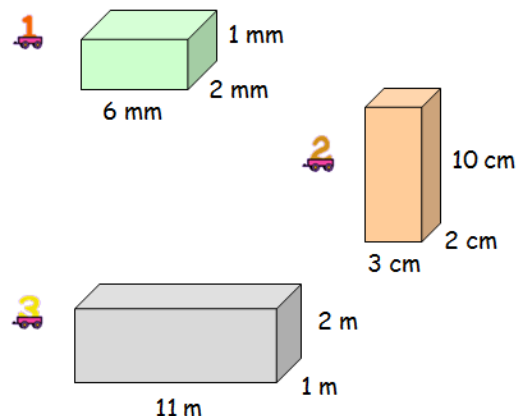12 cm

3. Calculate the surface area of a cube with sides 1·5 metres.

1·5 m

Silver Questions

Calculate the surface areas of the following cuboids...

1. 6 mm, 1 mm, 2 mm

2. 10 cm, 3 cm, 2 cm

3. 11 m, 2 m, 1 m

Gold Questions

Calculate the surface areas of the following cylinders...

1. 8 m, 5 m

2. 11 cm, 10 cm

3. 15 mm, 75 mm

Bronze Answers

1. Surface Area = 294 mm²

2. Surface Area = 864 cm²

3. Surface Area = 13·5 m²

Silver Answers

1. S.A. = 40 mm²

2. S.A. = 112 cm²

3. S.A. = 70 m²

Gold Answers

1. S.A. = 408·2 m²

2. S.A. = 1318·8 cm²

3. S.A. = 8478 mm²