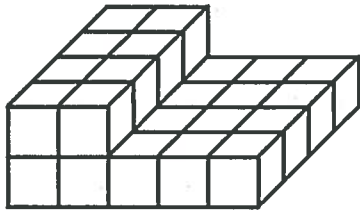


Chapter 1 - Line of Symmetry and Surface Area

Surface Area and Side length

Example #1

The object is made up of 2cm cubes. What is the total surface area of the object?



42 faces

area of 1 face

$$A = (2)(2)$$

$$= 4$$

total SA

$$SA = (\text{area of 1 face})(\# \text{ of faces})$$

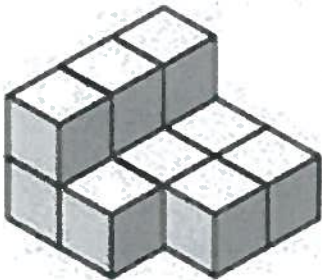
$$= (4)(42)$$

$$= 168$$

The surface area is 168cm²

Example #2

The object below is made up of identical cubes. If the total surface area of the object is 729 cm², what is the side length of the cubes?



36 faces

area of 1 face

$$\frac{729 \text{ cm}^2}{36} = 20.25$$

$$\sqrt{A} = \sqrt{s^2}$$

→

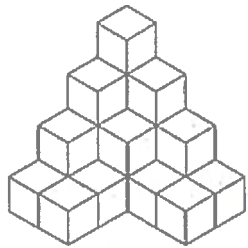
side length

$$\sqrt{20.25} = 4.5$$

The side length of each cube is 4.5cm.

Example #3

The object is made up of 3cm cubes. What is the surface area of the object if it is sitting on a table (exposed surface area)?



52 faces

↳ don't count the bottom

area of 1 face

$$A = s^2$$

$$= (3)^2$$

$$= 9$$

Total area

$$SA = (\text{area of 1 face})(\# \text{ of faces})$$

$$= (9)(52)$$

$$= 468$$

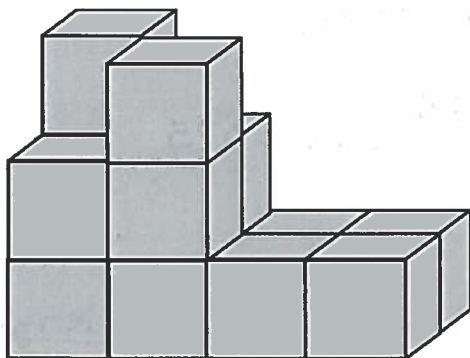
The exposed surface area is 468cm².

Surface Area and Volume

Example #4

The object has a volume of 378 cm³. What is the total surface area of the object?

There are 3 cubes completely hidden.



14 cubes

44 faces

Volume of 1 cube

$$\frac{378 \text{ cm}^3}{14} = 27 \text{ cm}^3$$

side length of each cube

$$\sqrt[3]{V} = \sqrt[3]{s^3} \rightarrow \sqrt[3]{27 \text{ cm}^3} = 3 \text{ cm}$$

surface area

$$SA = (3)(3)(44)$$

$$= 396$$



The surface area is 396cm²