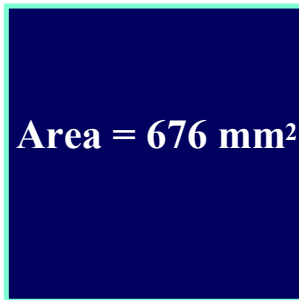


Warm Up Questions

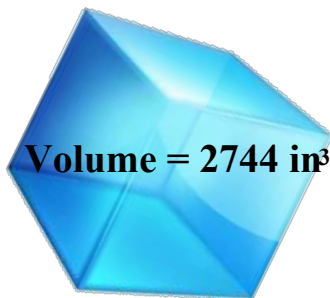
1.



Determine the side length of the square.

$$\sqrt{676}$$

2.



Determine the edge length of the cube.

$$\sqrt[3]{2744}$$

$$\begin{aligned} 1. \quad \sqrt{676} &= 2 \times 2 \times 13 \times 13 \\ &= 2 \times 13 \\ &= 26 \end{aligned}$$

$$\begin{aligned} 2. \quad \sqrt{2744} &= 2 \times 2 \times 2 \times 7 \times 7 \times 7 \\ &= 2 \times 7 \\ &= 14 \end{aligned}$$

Tricky

Determine the side length of
a square if the area is $81x^4y^2$

$$\begin{aligned}\sqrt{81x^4y^2} &= 3 \cdot 3 \cdot 3 \cdot 3 \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \\ &= 3 \cdot 3 \cdot x \cdot x \cdot y \\ &= 9x^2y\end{aligned}$$

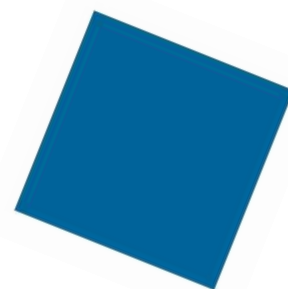


Area



Let's Take a Closer Look!!

Surface Area



Volume



Formulas

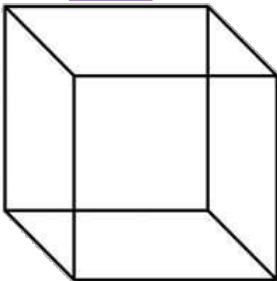
Square



$$\text{Area} = l \times w$$

Square: $\text{Area} = l \times l$

Cube



$$\text{Volume} = l \times w \times h$$

Cube: $\text{Volume} = l \times l \times l$

$$\text{Surface Area} = 6(l \times w)$$

Cube: $\text{Surface Area} = 6(l \times l)$



A cube has a surface area of 1944m^2 . What is its volume?

(i) Divide Surface Area by 6

$$\frac{1944\text{m}^2}{6} = 324\text{m}^2$$

$$\boxed{\text{Area} = 324\text{m}^2}$$

$$\begin{aligned} \text{(ii)} \quad \sqrt{324} &= 2 \times 2 \times 3 \times 3 \times 3 \times 3 \\ &= 2 \times 3 \times 3 \\ &= 18 \end{aligned}$$

$$\boxed{l = 18\text{m}}$$

$$\text{(iii)} \quad V = l \times l \times l$$

$$- \quad V = 18\text{m} \times 18\text{m} \times 18\text{m}$$

$$\boxed{V = 5832\text{m}^3}$$

You Try!

A cube has a surface area of 864 m^2 . What is its volume?

(i) Divide SA by 6

$$\frac{864 \text{ m}^2}{6} = 144 \text{ m}^2$$

$$\boxed{\text{Area} = 144 \text{ m}^2}$$

(ii) $\sqrt{144} = 2 \times 2 \times 2 \times 2 \times 3 \times 3$

$$= 2 \times 2 \times 3$$

$$= 12$$

$$\boxed{l = 12 \text{ m}}$$

(iii) $V = l \times l \times l$

$$V = 12 \times 12 \times 12$$

$$\boxed{V = 1728 \text{ m}^3}$$

$$SA = 6(l \times l)$$

A cube has a volume of 3375m^3 . What is its surface area?

(i) Find l :

$$\begin{aligned}\sqrt[3]{3375} &= 3 \times 3 \times 3 \times 5 \times 5 \times 5 \\ &= 3 \times 5 \\ &= 15\end{aligned}$$

$$\boxed{\text{length} = 15\text{m}}$$

(ii) Find SA

$$SA = 6(l \times l)$$

$$SA = 6(15 \times 15)$$

$$SA = 6(225)$$

$$\boxed{SA = 1350\text{m}^2}$$



A cube has a volume of 2197m^3 . What is its surface area?

(i) Find l

$$\sqrt[3]{2197} = 13 \times 13 \times 13$$
$$= 13$$

$$\boxed{\text{length} = 13\text{m}}$$

(ii) Find SA

$$\text{SA} = 6(l \times l)$$

$$\text{SA} = 6(13 \times 13)$$

$$\text{SA} = 6(169)$$

$$\boxed{\text{SA} = 1014\text{m}^2}$$



Funwork for Today

Pg. 147
9, 13, 17

Pg. 149
2d, 3f, 8df, 10