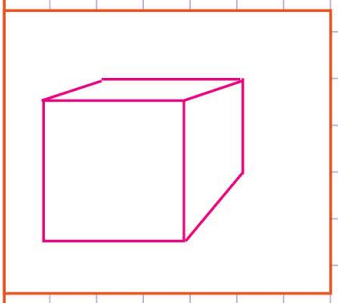
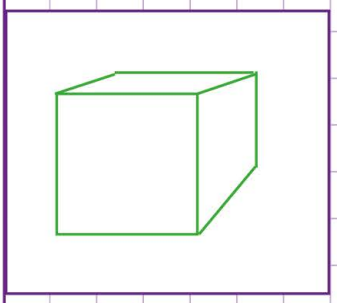
Name: ..... Class: .....

Relate volume and surface area

The surface area of this cube is 126 square inches. Find its volume.



The volume of this cube is 27 cm^3. What is its surface area?

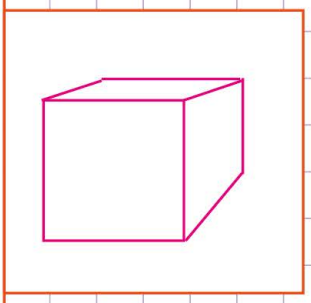


Solution

Name: ..... Class: .....

Relate volume and surface area

The surface area of this cube is 126 square inches. Round each side of the cube to the nearest tenth and find its volume .

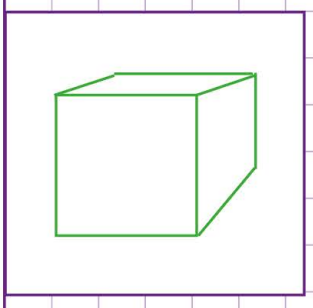


Area of cube = side x side.
Since there are 6 identical sides, find the area of one side.
Lets say the side = t
So, area = t x t.
Given that there are 6 sides,
Surface area = $6t^2$
$126 = 6t^2$
$t^2 = 126/6$
$t^2 = 21$
The square root of 21 = 4.58
So t = 4.6 in.

Volume of cube = side x side x side.
Each side of the cube = 4.6 in
volume = 4.6 in x 4.6 in x 4.6in
= 97.336 in^3

So, the volume of the cube is 97.336 cubic inches

The volume of this cube is 27 cm^3. What is its surface area?



volume of cube = side x side x side.
Let L represent the length.
Volume = L x L x L
Volume = L^3
$27 = L^3$
$L = \sqrt[3]{27} = \sqrt[3]{3 \times 3 \times 3} = \sqrt[3]{(3)^3}$
L = 3 cm

Now find the area of one face.
Area = 3cm x 3 cm = 9 cm^2
Since there are 6 identical sides,
so, surface area = (6 x 9) cm^2 = 54 cm^2

So, the surface area of the cube is 54 square centimeters.