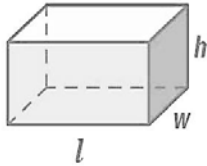# SURFACE AREA   *ANSWERS*

THE ***SURFACE AREA*** OF A SOLID IS THE TOTAL AREA OF ITS SURFACE. IT'S LIKE FINDING THE AREA OF A 2 DIMENSIONAL SHAPE BUT THERE WILL BE MORE THAN ONE SIDE SINCE IT'S 3 DIMENSIONAL.

TO FIND THE SURFACE AREA OF THIS ***RECTANGULAR PRISM*** YOU WOULD HAVE TO FIND THE AREA OF EACH FACE (SIDE) AND THEN ADD THEM ALL TOGETHER.

IF YOU LOOK CLOSELY YOU CAN SEE THERE ARE 6 FACES (SIDES) TOTAL. SO YOU WOULD HAVE TO FIND THE AREA OF EACH FACE.
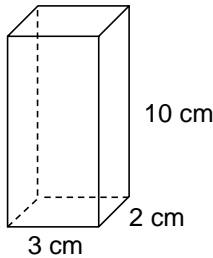
AREA OF FRONT OR BACK: (l x h)
AREA OF LEFT OR RIGHT: (w x h)
AREA OF TOP OR BOTTOM: (l x w)

SOME OF THE AREAS ARE EQUAL.

l = length
w = width
h = height

THE SURFACE AREA EQUATION WOULD LOOK LIKE THIS:
(l x w) + (l x w) + (w x h) + (w x h) + (l x h) + (l x h)   OR   2(l x w) + 2(w x h) + 2(l x h)

Helpful Example

Find the surface area of this rectangular prism.

6 faces   FIND THE AREA OF EACH FACE AND THEN ADD THEM ALL UP.

area of front: 3 cm x 10 cm = 30 cm^2 **area of right**: 2 cm x 10 cm = 20 cm^2

area of back: 3 cm x 10 cm = 30 cm^2 **area of top**: 3 cm x 2 cm = 6 cm^2

area of left: 2 cm x 10 cm = 20 cm^2 **area of bottom**: 3 cm x 2 cm = 6 cm^2
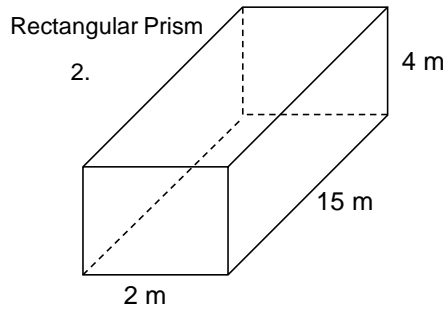
10 cm
2 cm
3 cm

total surface area: 30 + 30 + 20 + 20 + 6 + 6 = 112 cm^2

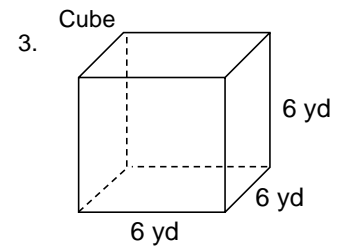**Now your turn. Find the surface area of each solid shape.**

DO YOU REALLY HAVE TO FIND THE AREA OF ALL 6 FACES?

Rectangular Prism
1.
3 in.
2 in.
6 in.

72 square inches

Rectangular Prism
2.
4 m
15 m
2 m
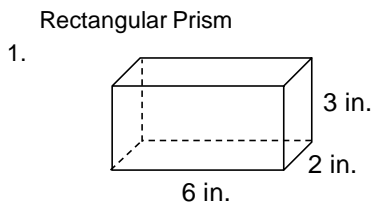
196 square meters

Cube
3.
6 yd
6 yd
6 yd

216 square yards

4. Kenny wants to paint the outside of his tool shack including the door. The shack is in the shape of a cube with a length of 2.2 meters and there are no windows. Before he can order the correct amount of paint he needs to know the surface area of his tool shack. How many square meters will he tell the store clerk? (Help: How many faces does he need to paint?)

24.2 square meters

5. The length, width, and height of a rectangular prism are all doubled, how much will the surface area increase by? (Help: Try this with a simple, small rectangular prism, what happens?)

4 times