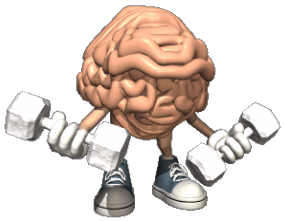
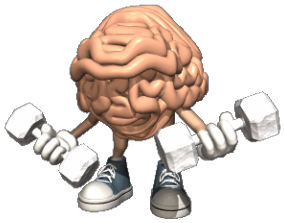
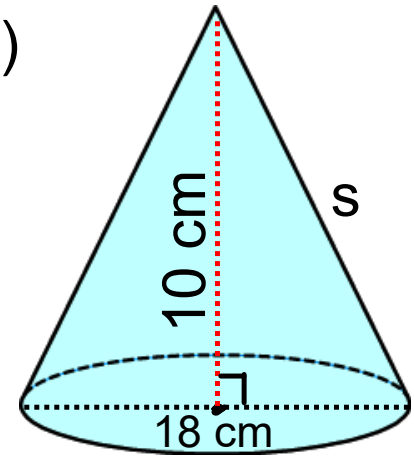


Grade 9 Warm Up



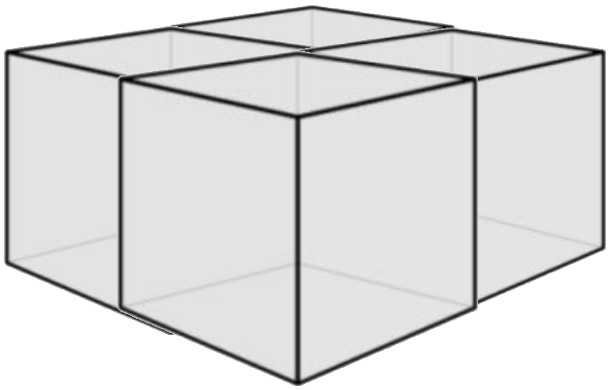
Remember: $c^2 = a^2 + b^2$
$b^2 = c^2 - a^2$

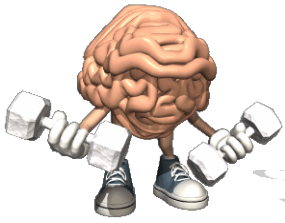
a)



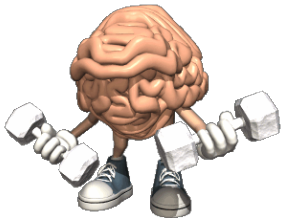
$SA = \pi r^2 + \pi rs$

b) Find the Surface Area of This Composite Object.
Each cube has edge length of 2 cm.





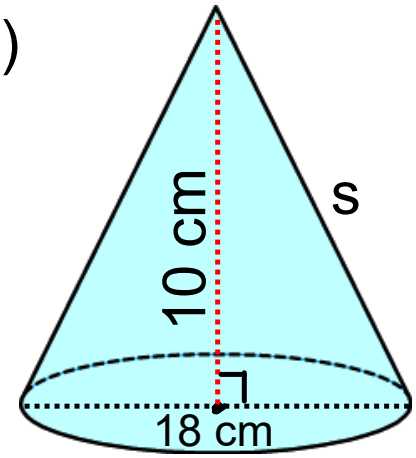
Grade 9 Warm Up

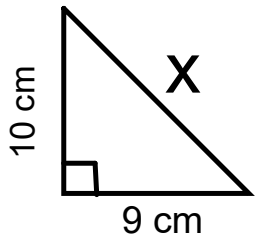


Remember: $c^2 = a^2 + b^2$

$b^2 = c^2 - a^2$

a)





$c^2 = a^2 + b^2$

$c^2 = 10^2 + 9^2$

$c^2 = 100 + 81$

$\sqrt{c^2} = \sqrt{181}$

$c = 13.5$ cm

$$SA = \pi r^2 + \pi rs$$

$$SA = (3.14)(9)^2 + (3.14)(9)(13.5)$$

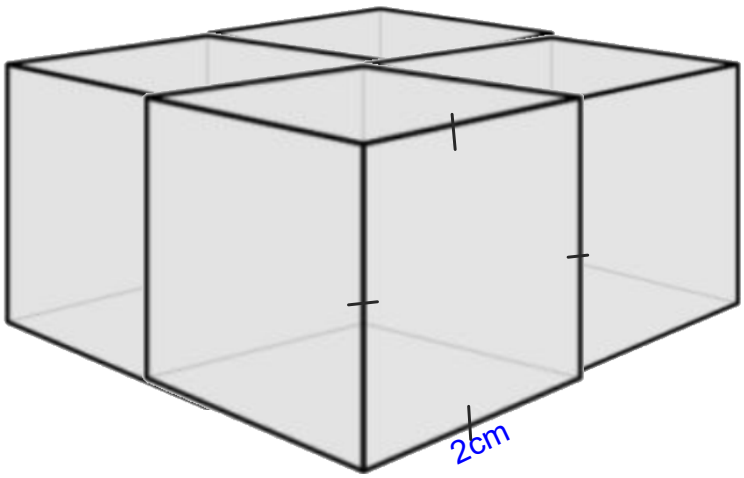
$$SA = (3.14)(81) + (3.14)(9)(13.5)$$

$$SA = 254.34 + 381.51$$

$$SA = 635.85 \text{ cm}^2$$

Warm Up Grade 9

Find the Surface Area of This Composite Object.
Each cube has edge length of 2 cm.



1 face

A= bxh

A = 2cm x 2cm

A=4 cm^2

4 Cubes

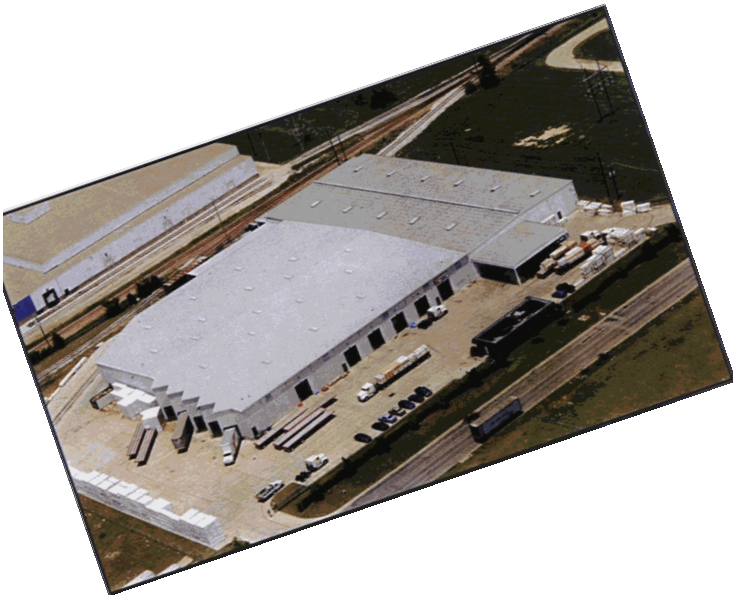
Total number of faces = 6 x 4 = 24 faces

# of overlaps = 4 ⟶ 8 faces

Total Area of all cubes = 24 faces - overlap faces
= 24 - 8

= 16 Faces

Total SA = 16 Faces x Area of one face
= 16 x 4 cm^2
= 64 cm^2



Warehouse

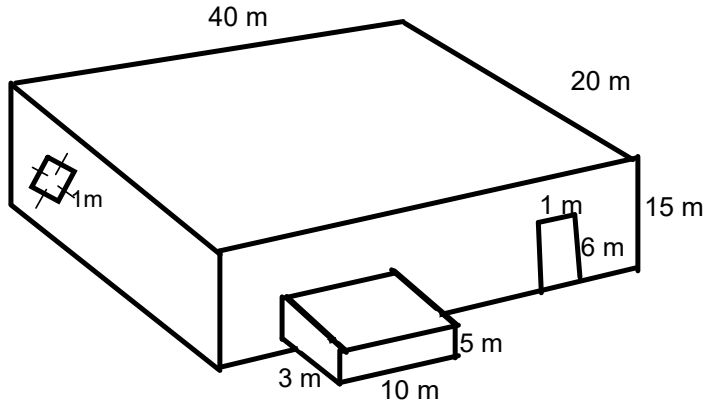
The parts of the building that are not to be painted: the floors; windows and doors

Warehouse Question

A warehouse measures 40 m by 20 m by 15 m.
An office attached to one wall of the warehouse measures 3 m by 10 m by 5 m.

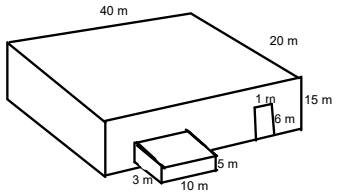
a) Determine the surface area of the building.

The parts of the building that are not to be painted: the 2 floors; windows and doors



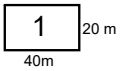
Find the area of the warehouse with the attached storage space.

(Think if you were going to paint this....How much paint is needed???)



Step 1) Calculate the sides of all of the larger prism, (40m , 20m ,15m)

Top

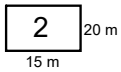


A_1=b x h

A_1 = 40 × 20

A_1= 800 m^2

left/ right



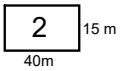
A_2 = b x h

A_2 = 15 × 20

A_2= 300 m^2

$2A_2$= 600 m^2

Front / back



A_3= b x h

A_3 = 15 × 40

A_3= 600 m^2

$2A_3$= 1200 m^2

So surface area of the storage space is:

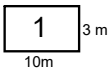
$SA_{big} = A_1 + 2A_2 + 2A_3$

$SA_{big} = 800 + 600 + 1200$

$SA_{big} = 2600\ m^2$

Step 2) Calculate the sides of all of the small prism, (3m , 10m ,5m)

Top

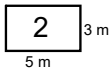


A_1=b x h

A_1 = 10 × 3

A_1= 30 m^2

left/ right



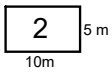
A_2 = b x h

A_2 = 5 × 3

A_2= 15 m^2

$2A_2$= 30 m^2

Front / back



A_3= b x h

A_3 = 5 × 10

A_3= 50 m^2

$2A_3$= 100 m^2

So surface area of the storage space is:

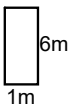
$SA_{small} = A_1 + 2A_2 + 2A_3$

$SA_{small} = 30 + 30 + 100$

$SA_{small} = 160\ m^2$

Identify the Overlap Area: _____

Area of door



A_1=b x h

A_1 = 6 × 1

A_1= 6 m^2

Area of window

A_1=b x h

A_1 = 1 × 1

A_1= 1 m^2

$TSA = SA_1 + SA_2$ - overlap - door - window

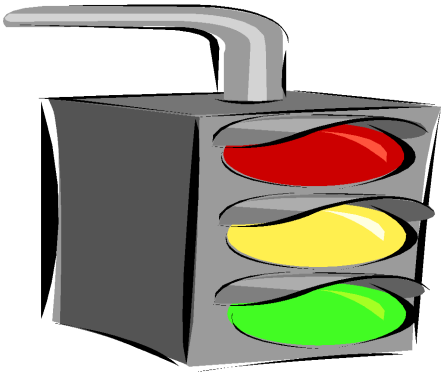
$= 2600m^2 + 160m^2 - 100m^2 - 6m^2 - 1m^2$

$= 2653m^2$

b) A contractor quotes to paint the exterior of the building at a rate of $2.50/m^2.

How much would it cost to paint the building?

$$\begin{array}{r} 2653\text{m}^2 \\ \times\ \$2.50 \\ \hline \$\ 6\,632.50 \end{array}$$



page 30 & 31

questions

10

Extra Practice 3 Worksheet

questions

All Questions