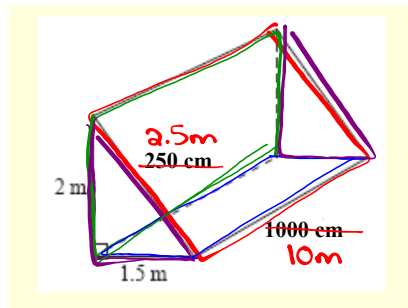
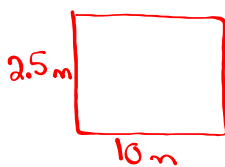


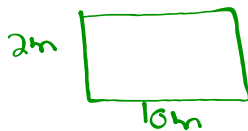
Calculate the surface area in meters.



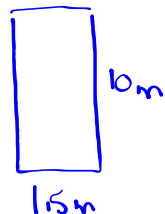
$$\begin{array}{l}
 \cancel{250\text{cm}} \times \frac{1\text{m}}{\cancel{100\text{cm}}} \\
 = \frac{250\text{m}}{100} \\
 = 2.5\text{m}
 \end{array}
 \quad
 \begin{array}{l}
 \cancel{1000\text{cm}} \times \frac{1\text{m}}{\cancel{100\text{cm}}} \\
 = \frac{1000\text{m}}{100} \\
 = 10\text{m}
 \end{array}$$



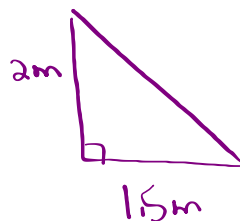
$$\begin{array}{l}
 A = l \times w \\
 A = 10\text{m} \times 2.5\text{m} \\
 \underline{A = 25\text{m}^2}
 \end{array}$$



$$\begin{array}{l}
 A = l \times w \\
 A = 10\text{m} \times 2\text{m} \\
 \underline{A = 20\text{m}^2}
 \end{array}$$



$$\begin{array}{l}
 A = l \times w \\
 A = 10\text{m} \times 1.5\text{m} \\
 \underline{A = 15\text{m}^2}
 \end{array}$$



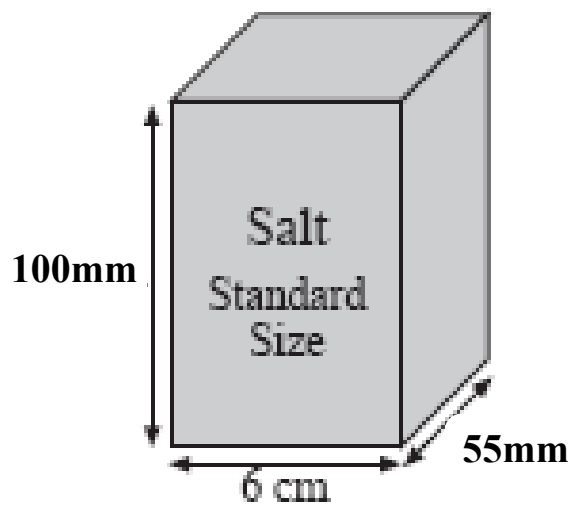
$$\begin{array}{l}
 A = \frac{b \times h}{2} \\
 A = \frac{1.5\text{m} \times 2\text{m}}{2} \\
 A = 1.5\text{m}^2
 \end{array}$$

Since there are 2 identical  $\triangle$

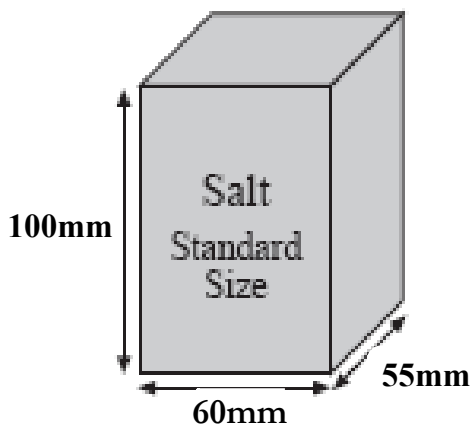
$$\begin{array}{l}
 A = 2(1.5\text{m}^2) \\
 \underline{A = 3\text{m}^2}
 \end{array}$$

$$\begin{array}{l}
 \text{Surface Area} = \underline{25} + \underline{20} + \underline{15} + \underline{3} \\
 = 63\text{m}^2
 \end{array}$$

Calculate the surface area in millimeters.



Calculate the surface area in millimeters.

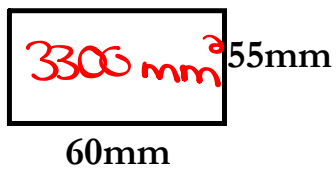


number x  $\frac{\text{want}}{\text{have}}$

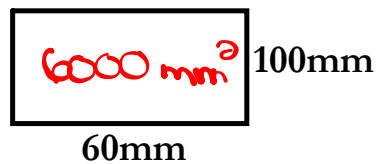
number x  $\frac{\text{mm}}{\text{cm}}$

number x  $\frac{10}{1}$

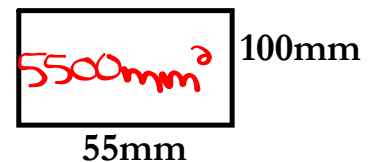
T & B



F & B



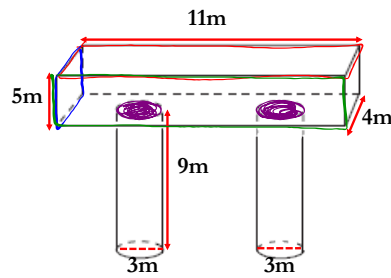
Sides



$$= 6600\text{mm}^2 + 12000\text{mm}^2 + 11000\text{mm}^2$$


$$= 29600\text{mm}^2$$

Calculate the surface area in meters.



Rectangular Prism:

Top + Bottom:




$$A = 2(l \times w)$$

$$A = 2(11m \times 4m)$$

$$A = 2(44m^2)$$

$$A = 88m^2$$

Sides:




$$A = 2(l \times w)$$

$$A = 2(5m \times 4m)$$

$$A = 2(20m^2)$$

$$A = 40m^2$$

Front + Back:



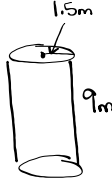
$$A = 2(l \times w)$$

$$A = 2(11m \times 5m)$$

$$A = 2(55m^2)$$

$$A = 110m^2$$

Cylinder:



$$A = 2\pi r^2 + 2\pi r h$$

$$A = 2(3.14)(1.5)^2 + 2(3.14)(1.5)(9)$$

$$A = 2(3.14)(2.25) + 2(3.14)(1.5)(9)$$


$$A = 14.13 + 84.78$$

$$A = 98.91 m^2 \leftarrow \text{Area of 1 cylinder}$$

$$A = 2(98.91 m^2)$$

$$A = 197.82 m^2$$

Overlap:



$$A = \pi r^2$$

$$A = (3.14)(1.5)^2$$

$$A = 7.065 m^2 \leftarrow \text{Area of 1 circle}$$

$$A = 4(7.065 m^2)$$

$$A = 28.26 m^2$$

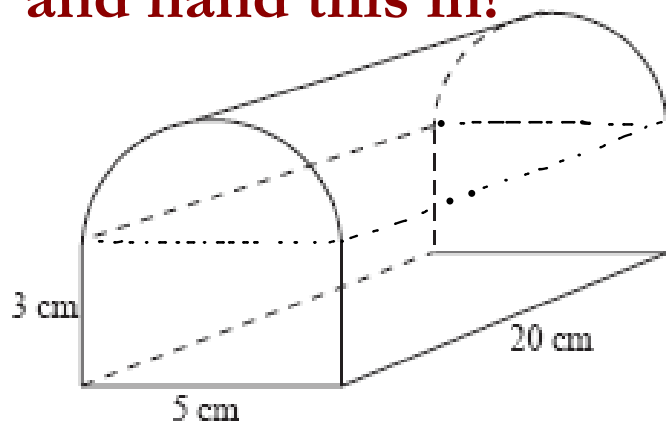
Circles have to be subtracted from tops of cylinders and bottom of prism

$$\text{Surface Area} = \underline{88} + \underline{40} + \underline{110} + \underline{197.82} - \underline{28.26}$$

$$= 407.56 m^2$$

↑  
Overlap

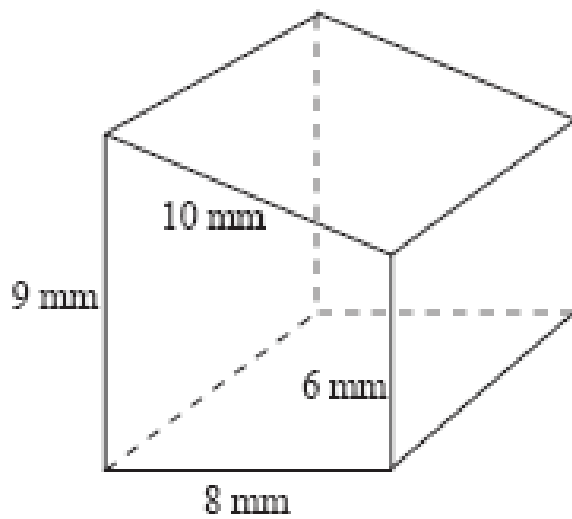
Calculate the surface area in centimeters and hand this in!



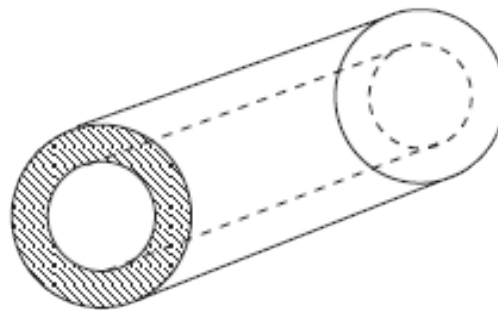
Answer:

$$SA = 426.625 \text{ cm}^2$$

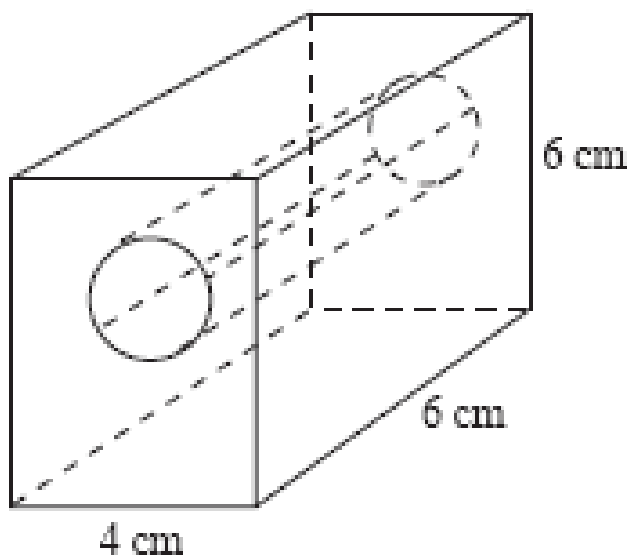
**Calculate the surface area in millimeters.**



The diagram shows the cross-section of a pipe of length 50 cm.  
The inner diameter of the pipe is 20 cm and the outer diameter is 30 cm.



**Calculate the surface area in centimeters.**





# Homework

③ a Cube:

$$A = l \times w$$
$$A = 4 \times 4$$
$$A = 16 \text{ cm}^2$$
  
$$A = 6 \times 16$$
$$A = 96 \text{ cm}^2$$

Cylinder:

$$A = 2\pi r^2 + 2\pi r h$$
$$A = 2(3.14)(1)^2 + 2(3.14)(1)(4)$$
$$A = 6.28 + 25.12$$
$$A = 31.4 \text{ cm}^2$$

Overlap:

$$A = \pi r^2$$
$$A = 3.14(1)^2$$
$$A = 3.14 \text{ cm}^2$$
  
$$A = 2 \times 3.14$$
$$A = 6.28 \text{ cm}^2$$

$$\text{Total} = 96 + 31.4 - 6.28$$
$$= 121.12 \text{ cm}^2$$

b) Prism:

T+B  $A = 2(4 \times 6)$   
 $A = 2(24)$   
 $A = 48 \text{ cm}^2$

F+B  $A = 2(3 \times 6)$   
 $A = 2(18)$   
 $A = 36 \text{ cm}^2$

L+R  $A = 2(3 \times 4)$   
 $A = 2(12)$   
 $A = 24 \text{ cm}^2$

$A = 108 \text{ cm}^2$

Cylinder:

$$A = 2\pi r^2 + 2\pi rh$$

$$A = 2(3.14)(0.5)^2 + 2(3.14)(0.5)(3)$$

$$A = 1.57 + 9.42$$

$$A = 10.99 \text{ cm}^2$$

Overlap:

$$A = \pi r^2$$

$$A = 3.14(0.5)^2$$

$$A = 0.785 \text{ cm}^2$$

$$A = 2 \times 0.785$$

$$A = 1.57 \text{ cm}^2$$

Total =  $108 + 10.99 - 1.57$   
 $= 117.42 \text{ cm}^2$

③ c) Cylinder (Top)                      Cylinder (Bottom)

$$A = 2\pi r^2 + 2\pi r h$$

$$A = 2(3.14)(5)^2 + 2(3.14)(5)(2)$$

$$A = 157 + 62.8$$

$$A = 219.8 \text{ cm}^2$$

$$A = 2\pi r^2 + 2\pi r h$$

$$A = 2(3.14)(1)^2 + 2(3.14)(1)(10)$$

$$A = 6.28 + 62.8$$

$$A = 69.08 \text{ cm}^2$$

Overlap!

$$A = \pi r^2$$

$$A = 3.14(1)^2$$

$$A = 3.14 \text{ cm}^2$$

$$A = 2 \times 3.14$$

$$A = 6.28 \text{ cm}^2$$

$$\text{Total} = 219.8 + 69.08 - 6.28$$

$$= 282.6 \text{ cm}^2$$

d) Cube:

$$A = l \times w$$

$$A = 3 \times 3$$

$$A = 9 \text{ cm}^2$$

$$A = 6 \times 9$$

$$A = 54 \text{ cm}^2$$

Prism:

(i)  $A = \frac{b \times h}{2}$

$$A = \frac{12 \times 9}{2}$$

$$A = 54 \text{ cm}^2$$

$$A = 2 \times 54$$

$$A = 108 \text{ cm}^2 \text{ (Top + Bottom)}$$

(ii)  $A = l \times w$

$$A = 15 \times 6$$

$$A = 90 \text{ cm}^2$$

(iii)  $A = l \times w$

$$A = 9 \times 6$$

$$A = 54 \text{ cm}^2$$

(iv)  $A = l \times w$

$$A = 7 \times 6$$

$$A = 42 \text{ cm}^2$$

(v)  $A = 108 + 90 + 54 + 70$

$$A = 324 \text{ cm}^2$$

Overlap!

$$A = l \times w$$

$$A = 3 \times 3$$

$$A = 9 \text{ cm}^2$$

$$A = 2 \times 9$$

$$A = 18 \text{ cm}^2$$

$$\text{Total} = 54 + 324 - 18$$

$$= 360 \text{ cm}^2$$

③e) Cube:

$$A = l \times w$$

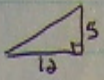
$$A = 2 \times 2$$

$$A = 4 \text{ cm}^2$$

$$A = 6 \times 4$$

$$A = 24 \text{ cm}^2$$

Prism:

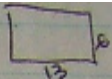
(i)  $A = \frac{b \times h}{2}$  

$$A = \frac{12 \times 5}{2}$$

$$A = 30 \text{ cm}^2$$

$$A = 2 \times 30$$

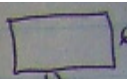
$$A = 60 \text{ cm}^2 \text{ (Front+Back)}$$

(ii) 

$$A = l \times w$$

$$A = 13 \times 6$$

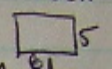
$$A = 78 \text{ cm}^2$$

(iii) 

$$A = l \times w$$

$$A = 12 \times 6$$

$$A = 72 \text{ cm}^2$$

(iv) 

$$A = l \times w$$

$$A = 5 \times 6$$

$$A = 30 \text{ cm}^2$$

(v)  $A = 60 + 78 + 30 + 72$

$$A = 240 \text{ cm}^2$$

$$\text{Total} = 24 + 240 - 8$$

$$= 256 \text{ cm}^2$$

Overlap:

$$A = l \times w$$

$$A = 2 \times 2$$

$$A = 4 \text{ cm}^2$$

$$A = 2 \times 4$$

$$A = 8 \text{ cm}^2$$