

Nov. 6,2018

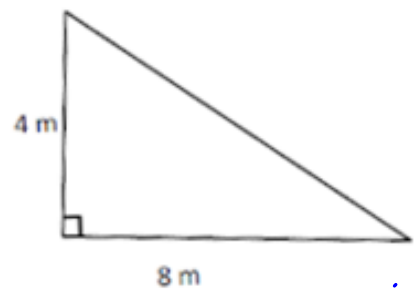
Section 1.3

Surface Area

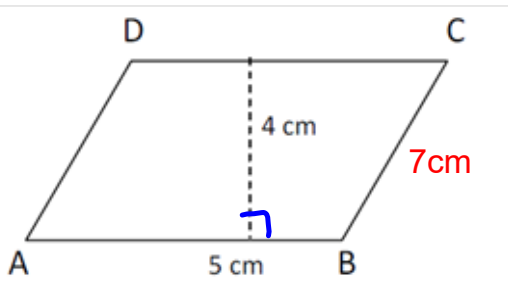
Rectangular Prisms

Area of a rectangle $A=bh$
 $A= lw$

area of a triangle



Area of a parallelogram



$$A=bh$$

$$= 5 \times 4$$

$$= 20 \text{ cm}^2$$

$$A = \frac{bh}{2}$$

$$= \frac{8 \times 4}{2}$$

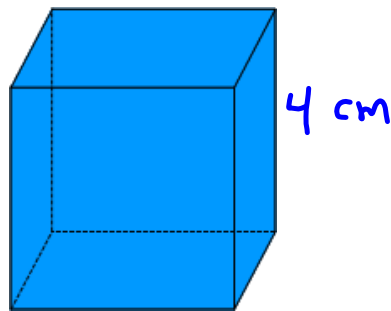
$$A = 16 \text{ m}^2$$

Height is perpendicular to base!
 [right angle]

*****Review*****

A face is one flat surface of an object

A cube has 6 faces

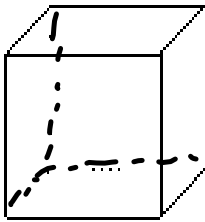


To Find Surface Area...

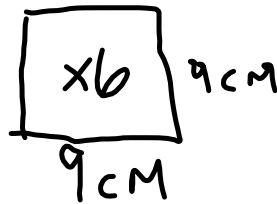
Step 1 Draw the faces

Step 2 Find the area of each face

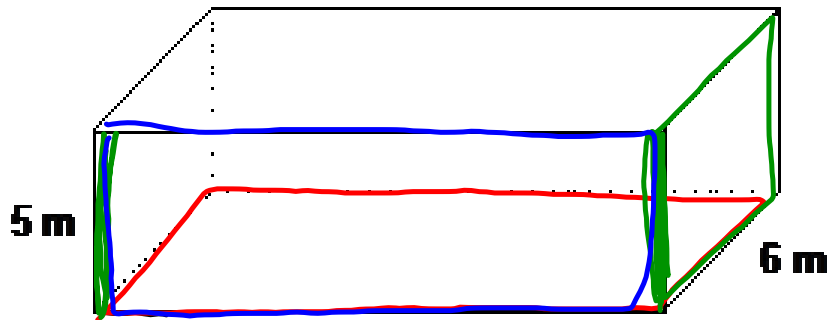
Step 3 Add the area of each face



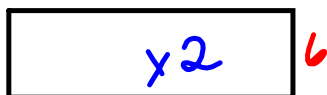
9 cm



$$\begin{aligned}
 A &= bh \\
 &= 9 \times 9 \\
 &= 81 \text{ Area of one face} \\
 &\times 6 \text{ faces} \\
 \hline
 &486 \text{ cm}^2
 \end{aligned}$$

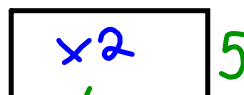


Top / Bottom
[T/B]



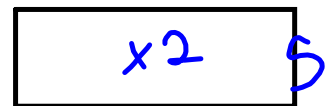
$$\begin{aligned}
 A &= bh \\
 &= 16 \times 6 \\
 &= 96 \\
 &\times 2 \\
 \hline
 &192
 \end{aligned}$$

Sides



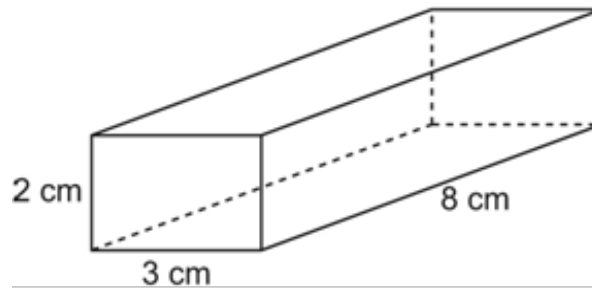
$$\begin{aligned}
 A &= bh \\
 &= 16 \times 5 \\
 &= 80 \\
 &\times 2 \\
 \hline
 &160
 \end{aligned}$$

Front / Back
[F/B]



$$\begin{aligned}
 A &= bh \\
 &= 16 \times 5 \\
 &= 80 \\
 &\times 2 \\
 \hline
 &160
 \end{aligned}$$

$$\begin{aligned}
 \text{Total Surface Area} &= 192 + 160 + 160 \\
 \text{[TSA]} &= 512 \text{ m}^2
 \end{aligned}$$



Front / Back

$$\begin{array}{r}
 \boxed{x2} \quad 2 \\
 3 \\
 A = bh \\
 = 3 \times 2 \\
 = 6 \\
 \underline{\times 2} \\
 12
 \end{array}$$

Top / Bottom

$$\begin{array}{r}
 \boxed{x2} \quad 3 \\
 8 \\
 A = bh \\
 = 8 \times 3 \\
 = 24 \\
 \underline{\times 2} \\
 48
 \end{array}$$

Sides

$$\begin{array}{r}
 \boxed{x2} \quad 2 \\
 8 \\
 A = bh \\
 = 8 \times 2 \\
 = 16 \\
 \underline{\times 2} \\
 32
 \end{array}$$

$$\begin{array}{r}
 TSA = 12 + 48 + 32 \\
 = \boxed{92 \text{ cm}^2}
 \end{array}$$

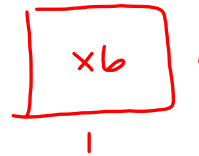
Surface Area of Composite Objects

A composite object is the result of combining **one or more objects to make a **new object****



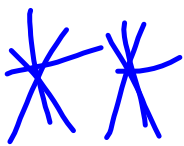
| Number of Cubes | Surface Area (square units) u^2 |
|-----------------|-----------------------------------|
| 1 | $6u^2$ |
| 2 | $10u^2$ |
| 3 | $14u^2$ |
| 4 | $18u^2$ |
| 5 | $22u^2$ |

Surface area of "1" cube

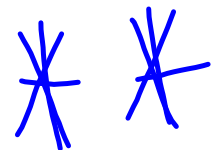


$$\begin{aligned}
 A &= bh \\
 &= 1 \times 1 \\
 &= 1 \text{ face} \\
 &\frac{\times 6}{6 \text{ units}^2} \\
 &6u^2
 \end{aligned}$$

***Each connection gives a loss**



of two faces *



Find the surface area.

Page 26 to find picture.



of cubes \times surface area of 1 cube

$$4 \times 6$$

$$TSA = 24$$

Total Surface area - # faces lost

$$24 - 6$$

$$18u^2$$

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4.

a)



b)



① TSA = #cubes x SA of one
 3×6
 18

② TSA - #faces lost
 $18 - 4$
 $14 u^2$

① TSA = #cubes x SA of one
 4×6
 24

② TSA - #faces lost
 $24 - 6$
 $18 u^2$

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c, d, e, f



$$TSA = \# \text{ cubes} \times SA \text{ of } 1$$

$$TSA = \# \text{ cubes} \times SA \text{ of } 1$$

TSA - faces lost

TSA - faces lost

e)



f)



