

Curriculum Outcome

(N5) Determine the square root of positive rational numbers that are perfect squares.

(N6) Determine an approximate square root of positive rational numbers that are non-perfect squares.

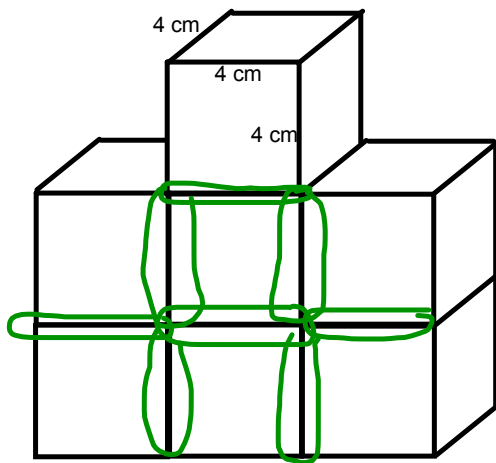
(SS2) Determine the surface area of composite 3-D objects to solve problems

(N4) **Explain and apply the order of operations, including exponents, with and without technology.**

Warm Up

Calculate the surface area of the following

(Show all work)



$$A = b \times h$$

$$4 \times 4$$

$$16 \text{ cm}^2$$

$$7 \text{ cubes} \times 6 \text{ faces}$$

$$= 42 \text{ faces} - 8 \text{ overlap}$$

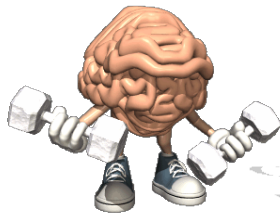
$$\downarrow$$

$$= 42 \text{ face} - 16 \text{ faces}$$

$$= 26 \text{ faces}$$

$$\underline{\quad \times 16 \text{ cm}^2}$$

$$416 \text{ cm}^2$$

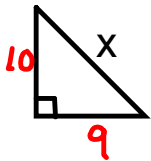
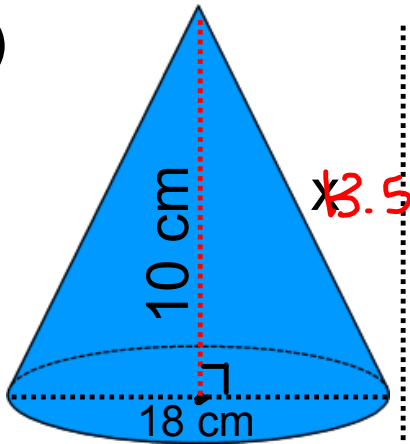


Grade 9 Warm Up



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

a)



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

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

$$c^2 = 181$$

$$c = 13.5$$

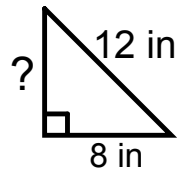
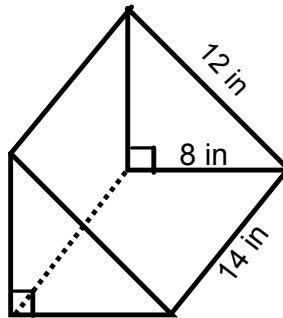
$$SA = \pi r^2 + \pi rs$$

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

$$SA = 254.34 + 381.51$$

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

b)



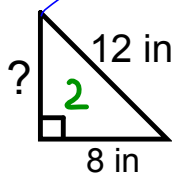
$$b^2 = c^2 - a^2$$

$$b^2 = 12^2 - 8^2$$

$$b^2 = 144 - 64$$

$$b^2 = 80$$

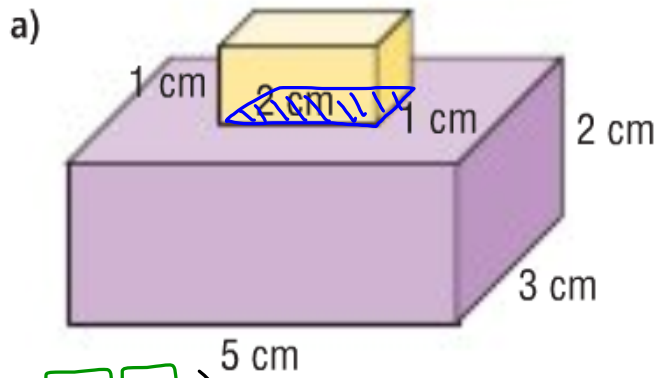
$$b = 8.9$$



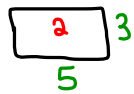
8	1	8.9	12
8	14	14	14
$A = \frac{b \times h}{2}$	112	124.6	168
$A = \frac{8 \times 8.9}{2}$			
$A = 35.6$			
$2A = 71.2$			

$$TSA = 71.2 + 112 + 124.6 + 168$$

$$= 475.8 \text{ in}^2$$



Big : $(5 \ 3 \ 2)$



$$A = b \times h$$

$$A = 5 \times 3$$

$$A = 15$$

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



$$A = b \times h$$

$$A = 3 \times 2$$

$$A = 6$$

$$2A = 12 \text{ cm}^2$$



$$A = b \times h$$

$$A = 5 \times 2$$

$$A = 10$$

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

$$SA = 30 + 12 + 20$$

$$SA = 62 \text{ cm}^2$$

small : $(1 \ 2 \ 1)$



$$A = b \times h$$

$$A = 1 \times 2$$

$$A = 2$$

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



~~$$A = b \times h$$

$$A = 1 \times 2$$

$$A = 2$$

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



$$A = b \times h$$

$$A = 1 \times 1$$

$$A = 1$$

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

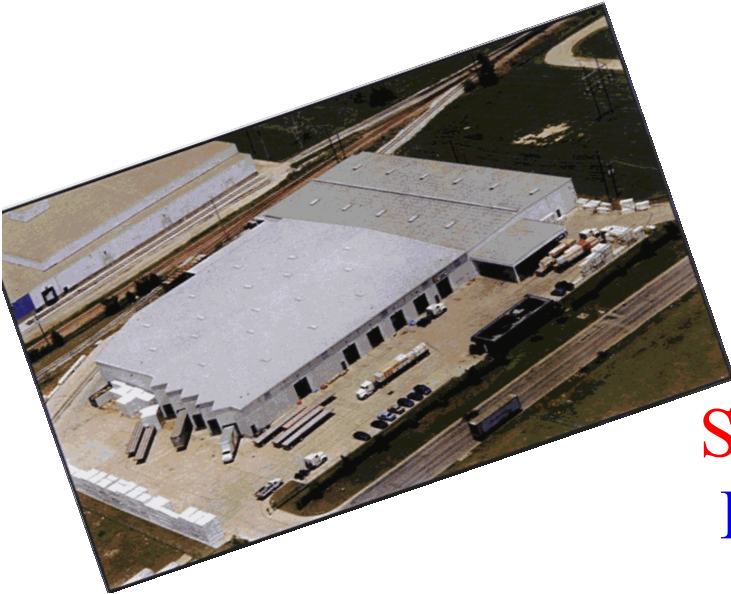
$$SA_2 = 4 + 4 + 2$$

$$= 10 \text{ cm}^2$$

$$TSA = SA_1 + SA_2 - \text{overlap}$$

$$= 62 + 10 - 4$$

$$= 68 \text{ cm}^2$$



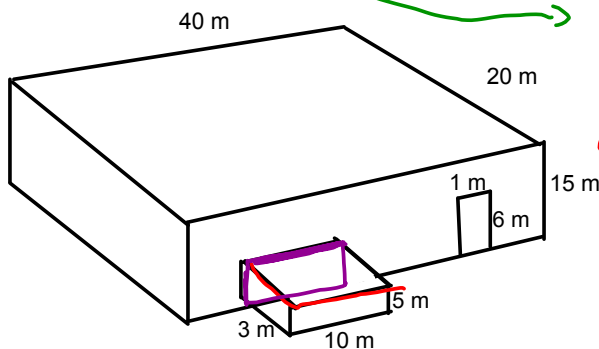
See Page 29
Example 3

Warehouse Question

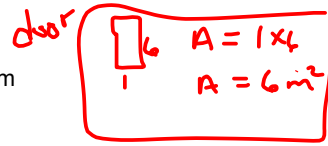


Find the area of the warehouse with the attached storage space.

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



No floors
 → No windows
 → No doors



Step 1) Calculate the sides of all of the larger prism,

$$15 \begin{array}{|c|} \hline 2 \\ \hline 20 \\ \hline \end{array}$$

$$A = b \times h$$

$$A = 15 \times 20$$

$$A = 300$$

$$2A = 600 \text{ m}^2$$

$$15 \begin{array}{|c|} \hline 2 \\ \hline 40 \\ \hline \end{array}$$

$$A = b \times h$$

$$A = 40 \times 15$$

$$A = 600$$

$$2A = 1200 \text{ m}^2$$

$$15, 20, 40 \text{ Top}$$

$$20 \begin{array}{|c|} \hline 1 \\ \hline 40 \\ \hline \end{array}$$

$$A = b \times h$$

$$A = 20 \times 40$$

$$A = 800 \text{ m}^2$$

$$SA_{b_3} = 600 + 1200 + 800$$

$$= 2600 \text{ m}^2$$

Step 2) Storage space consist of 3 walls and a roof

$$3 \begin{array}{|c|} \hline \text{Top} \\ \hline 1 \\ \hline 10 \\ \hline \end{array}$$

$$A = b \times h$$

$$A = 3 \times 10$$

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

$$3 \begin{array}{|c|} \hline 2 \\ \hline 5 \\ \hline \end{array}$$

$$A = b \times h$$

$$A = 3 \times 5$$

$$A = 15 \text{ m}^2$$

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

$$3, 10, 5$$

$$5 \begin{array}{|c|} \hline 2 \\ \hline 10 \\ \hline \end{array}$$

$$A = b \times h$$

$$A = 5 \times 10$$

$$A = 50$$

$$2A = 100 \text{ m}^2$$

overb

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

$$= 160 \text{ m}^2$$

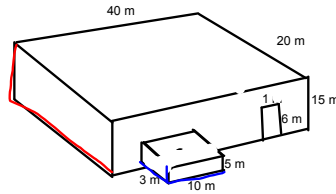
$$TSA = SA_{b_3} + SA_{sm} - \text{overlap} - \text{door}$$

$$= 2600 + 160 - 100 - 6$$

$$= 2654 \text{ m}^2$$

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 x 20m x 15m)

<p>Top</p> <p>$A_1 = b \times h$ $A_1 = 40 \times 20$ $A_1 = 800 \text{ m}^2$</p>	<p>left / right</p> <p>$A_2 = b \times h$ $A_2 = 20 \times 15$ $A_2 = 300 \text{ m}^2$ $2A_2 = 600 \text{ m}^2$</p>	<p>Front / back</p> <p>$A_3 = b \times h$ $A_3 = 40 \times 15$ $A_3 = 600 \text{ m}^2$ $2A_3 = 1200 \text{ m}^2$</p>
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So surface area of the storage space is:

$$SA_1 = A_1 + 2A_2 + 2A_3$$

$$= 800 + 600 + 1200$$

$$= 2600 \text{ m}^2$$

Step 2) Storage space consist of 3 walls and a roof (3m x 10m x 5m)

<p>Top</p> <p>$A_1 = B \times h$ $A_1 = 10 \times 3$ $A_1 = 30 \text{ m}^2$</p>	<p>left / right</p> <p>$A_2 = b \times h$ $A_2 = 3 \times 5$ $A_2 = 15 \text{ m}^2$ $2A_2 = 30 \text{ m}^2$</p>	<p>Front / back</p> <p>$A_3 = b \times h$ $A_3 = 10 \times 5$ $A_3 = 50 \text{ m}^2$ $2A_3 = 100 \text{ m}^2$</p>
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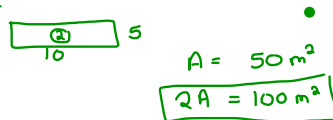
So surface area of the storage space is:

$$SA = A_1 + 2A_2 + 2A_3$$

$$= 30 + 30 + 100$$

$$= 160 \text{ m}^2$$

Overlap



door



$A = 1 \text{ m} \times 6 \text{ m}$
 $A = 6 \text{ m}^2$

$$TSA = SA_1 + SA_2 - \text{overlap} - \text{door}$$

$$= 2600 + 160 - 100 - 6$$

$$= 2654 \text{ m}^2$$

Class/ Homework

page 31

Questions: 8b,c

~~10~~

MUST SHOW ALL WORK

