

# Warm Up



Find the Surface Area (Show all work)

**Triangular prism**

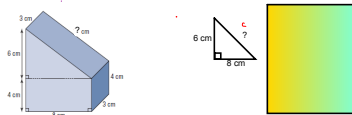
$a^2 + b^2 = c^2$   
 $6^2 + 8^2 = c^2$   
 $36 + 64 = c^2$   
 $\sqrt{100} = \sqrt{c^2}$   
 $10 = c$

$A = \frac{1}{2}bh$   
 $A = \frac{1}{2} \cdot 8 \cdot 6 = 24 \text{ cm}^2$   
 $A = \frac{1}{2}bh$   
 $A = \frac{1}{2} \cdot 8 \cdot 4 = 16 \text{ cm}^2$   
 $SA = 2A + 24 + 30$   
 $SA = 2(24) + 30$   
 $SA = 48 + 30$   
 $SA = 78 \text{ cm}^2$

**Rectangular prism**

$A = b \times h$   
 $A = 4 \times 8 = 32 \text{ cm}^2$   
 $A = b \times h$   
 $A = 3 \times 4 = 12 \text{ cm}^2$   
 $A = b \times h$   
 $A = 8 \times 3 = 24 \text{ cm}^2$

$SA = 32 + 32 + 12 + 12 + 24 + 24 = 136 \text{ cm}^2$   
 Overlap =  $2 \times 24 \text{ cm}^2 = 48 \text{ cm}^2$   
 Final SA =  $136 - 48 = 88 \text{ cm}^2$



**Triangle Prism**

**Front/Back:**  $A_1 = \frac{1}{2}bh = \frac{1}{2} \cdot 8 \cdot 6 = 24$   
 $2A_1 = 48$

**Left Side:**  $A_2 = b \times h = 6 \times 3 = 18$   
 $2A_2 = 36$

**Bottom:**  $A_3 = b \times h = 8 \times 3 = 24$   
 $2A_3 = 48$

**Top:**  $A_4 = b \times h = 8 \times 3 = 24$   
 $2A_4 = 48$

$SA_1 = 2A_1 + A_2 + A_3 + A_4$   
 $SA_1 = 48 + 18 + 24 + 30$   
 $SA_1 = 120 \text{ cm}^2$

**Rectangle Prism**

**Front/Back:**  $A_1 = b \times h = 8 \times 4 = 32$   
 $2A_1 = 64$

**Left/Right:**  $A_2 = b \times h = 3 \times 4 = 12$   
 $2A_2 = 24$

**Top/Bottom:**  $A_3 = b \times h = 8 \times 3 = 24$   
 $2A_3 = 48$

$SA_2 = 2A_1 + 2A_2 + 2A_3$   
 $SA_2 = 64 + 24 + 48$   
 $SA_2 = 136 \text{ cm}^2$

**Overlap**

$A = b \times h = 8 \times 3 = 24$   
 $2A = 48 \text{ cm}^2$

**Total Surface Area**

$T_{SA} = SA_1 + SA_2 - \text{Overlap}$

# Class/Homework

You seen how I showed all my work with last nights homework, you must do the same for this worksheet. (No shortcuts)

*Actual answers in red.*

Master 1.18 Extra Practice 3

## Lesson 1.3: Surface Areas of Objects Made from Right Rectangular Prisms

1. Each cube has edge length 1 unit. Determine the surface area of each object.

a) *22 units<sup>2</sup>*

b) *18 units<sup>2</sup>*

c) *10 x 6 unit = 60 unit<sup>2</sup> - 24 unit<sup>2</sup> = 36 unit<sup>2</sup>*

d) *30 units<sup>2</sup>*

2. Each edge of a linking cube is 1 unit long. Build a composite object with 7 linking cubes. Exchange objects with a classmate. Determine the surface area of your classmate's object. Check each other's work.

3. Determine the surface area of this composite object. *SA = 11900 cm<sup>2</sup>*

4. The local curling rink is shown in the diagram at the right. It is to be painted.

a) Determine the surface area of the structure. *SA = 33550 m<sup>2</sup>*

b) The roof, windows, and door are not to be painted. The door is 1 m by 2 m and the window is 7 m by 2 m. Determine the surface area to be painted. *112 cans = 12 x 45 = \$540*

c) A can of paint covers 300 m<sup>2</sup> and costs \$45. Determine the cost of the paint needed.



*A = bh = 1 x 1 = 1 unit<sup>2</sup>*

*Each cube 6 faces x 1 unit = 6 unit<sup>2</sup>  
5 cubes x 6 unit<sup>2</sup> = 30 unit<sup>2</sup>  
- 8 unit<sup>2</sup>  
22 unit<sup>2</sup>*

*SA = 33550 m<sup>2</sup>  
112 cans = 12 x 45 = \$540*

*9372 m<sup>2</sup> ÷ 300 m<sup>2</sup> = 31.24 cans*

*32 cans.*

*Cost = \$45/can x 32 cans = \$1440*



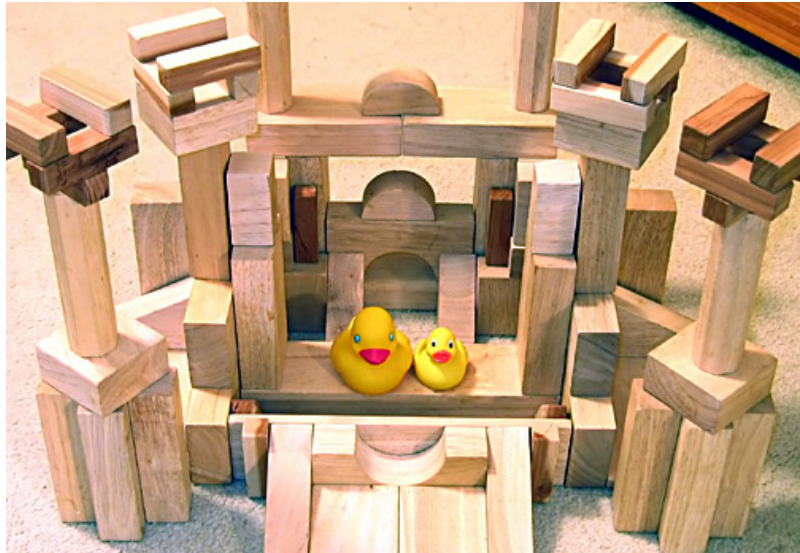
# Section 14



# Surface Area Of Other Composite Objects



Surface area????



### Other Composite Shapes

3-D shapes sitting on other 3-D shapes (This will cause an overlap meaning that the entire two or more shapes are not exposed to the surface)

## Class / Homework

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Questions :

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3a *cylinder/cube*

3b *cylinder/rectangular prism*

3c *cylinder/cylinder*

~~3d~~