

Questions from homework?

Success Criteria -- What did you do to be successful in answering these questions and giving a good solution? This can include thinking processes, organization and calculations.

QUIZ -- You may use your formula sheet

2.2 Composite Objects

Learning goal: by the end of today I will be able to:
determine the surface area and volume of composite
objects.

To find the **surface area** or **volume** of a
composite object what do you need to do?

Draw a **graphic organizer** to explain your steps
for the example below:

In your groups:

A: Write your solution on chart paper

B: Write your steps as a graphic organizer

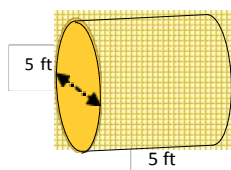
Each group will be assigned #1a, bc or #2

VOLUME AND SURFACE AREA OF COMPOSITE OBJECTS

Example 1:

A machine bales hay in cylindrical rolls. For storage, a shrink-wrap protective cover is placed on the bale.

- Determine the volume of hay in a bale and the area of the shrink wrap covering it.
- How much shrink wrap is needed if the wrap does not cover the ends of the roll?
- Suppose the shrink wrap is priced by the square metre. To the nearest square metre, how many square metres of wrap are needed to cover the bale as described in "b"



$$\begin{aligned}
 a) \quad V &= \pi r^2 h \\
 &= \pi (2.5)^2 (5) \\
 &= 98.2 \text{ cubic ft.}
 \end{aligned}$$

$$\begin{aligned}
 S.A. &= 2\pi r^2 + 2\pi r h \\
 &= 2\pi (2.5)^2 + 2\pi (2.5)(5) \\
 &= 117.8 \text{ sq. ft.}
 \end{aligned}$$

$$\begin{aligned}
 b) \quad \text{Total} &- 2 \text{ circles} \\
 S.A. &= 117.8 - 2\pi r^2 \\
 &= 117.8 - 2\pi (2.5)^2 \\
 &= 78.5 \text{ sq. ft.}
 \end{aligned}$$

$$\begin{array}{l}
 c) \quad \text{Rule} \\
 \frac{1 \text{ ft}}{0.3048 \text{ m}}
 \end{array}$$

$$\begin{array}{l}
 \text{Rule squared} \\
 \frac{1}{0.0929} \neq \frac{78.5}{x}
 \end{array}$$

$$\begin{aligned}
 78.5 \times 0.0929 &= x \\
 7.3 \text{ m}^2 &= x
 \end{aligned}$$

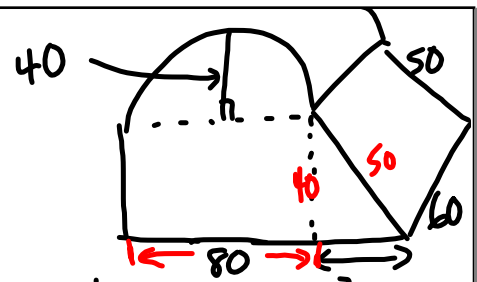
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Volume

Rec. Prism

$$\begin{aligned} V &= lwh \\ &= (80)(40)(60) \\ &= 192000 \end{aligned}$$

Tri. Prism

$$\begin{aligned} V &= \frac{bh}{2} \\ &= \frac{30(40)(60)}{2} \\ &= 36000 \end{aligned}$$



1/2 cylinder

$$\begin{aligned} V &= \frac{\pi r^2 h}{2} \\ &= \frac{\pi (40)^2 (60)}{2} \\ &= 150796.4 \end{aligned}$$

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

$$30^2 + b^2 = 50^2$$

$$b^2 = 50^2 - 30^2$$

$$b^2 = 1600$$

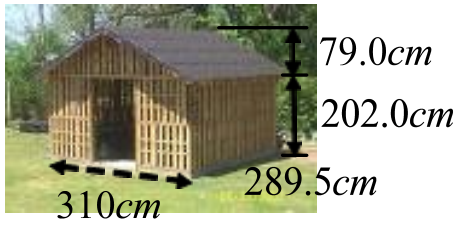
$$b = \sqrt{1600}$$

$$b = 40$$

$$\begin{aligned} T.V. &= 192000 + 36000 + 150796.4 \\ &= 378796.4 \text{ cm}^3 \end{aligned}$$

Example 2:

Determine the volume of the shed in **cubic metres**.



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#2_a, 3, 4, 5, 6, 7_a, 14, 15