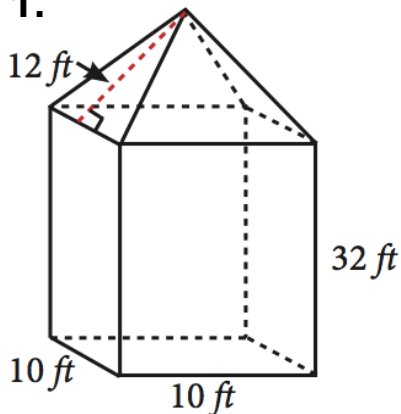


WHAT YOU'LL LEARN

- 1) Identify the different types of figures that make up the solid.
- 2) Identify what parts of each figure are on the surface of the solid.
- 3) Calculate the surface area of composite shapes.

Find the surface area of the figure below:

1.



Identify the parts of the solid on the surface.

Find the area of the base.

$$A_{Base} = 10(10) = 100$$

Find the lateral area of the prism.

$$LA_{Prism} = P_{base}h$$

$$LA_{Prism} = 4(10)(32) = 1280$$

Find the lateral area of the pyramid.

$$LA_{Pyramid} = \frac{1}{2}P_{base}h$$

$$LA_{Pyramid} = \frac{1}{2}(40)(12) = 240$$

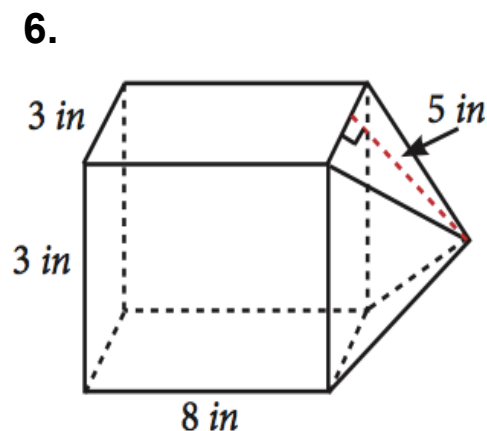
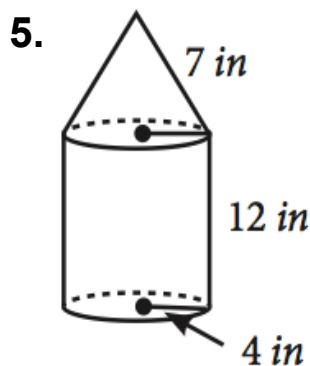
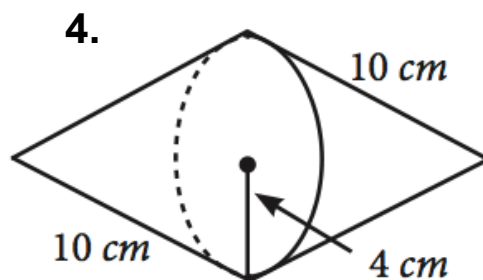
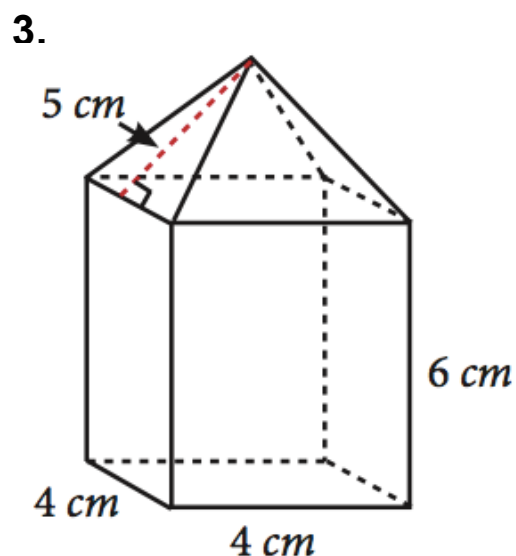
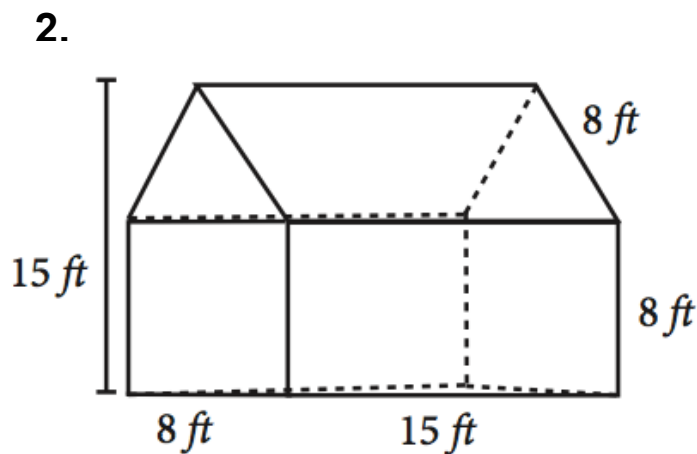
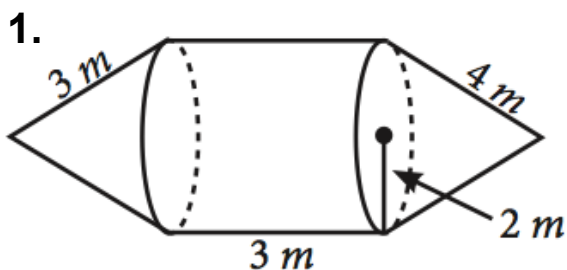
Find the sum of all three parts.

$$S.A. = 1280 + 240 + 100$$

The surface area of the composite solid is 1620 square feet.

PRACTICE TEST:

Find the Surface Area of the following. Write your complete solutions, final answers correct to two decimal places. Use pi in your calculator.



APPLICATIONS:

Solve the following problems completely. Write your final answers correct to two decimal places. Use pi in your calculator.

- 1) Yanna celebrated her fifth birthday. She ate at her favorite restaurant. She ordered a soda pop. The soda pop came in a cup shaped like a cylinder with a cone top. The cylinder part of the cup was 6 inches tall and the height of the top was 2 inches. The radius of the cup was 2 inches. What was the surface area of the cup?
- 2) James wants to paint his grain silo. The diameter of the silo is 8 meters. The height of the cylindrical part is 12 meters. The slant height of the cone top is 4.5 meters.
 - a. Calculate the surface area of the grain silo.
 - b. A five-gallon bucket of paint covers 20 square meters. How many buckets of paint will James need?
- 3) Shynna designed her perfect wedding cake. She wants to have 3 layers with smooth white frosting on the cake. The first layer will have a 24-inch diameter, the second layer will have an 18-inch diameter and the top layer will have a 10-inch diameter. Each layer will be 6-inches tall. How many square inches of frosting will show on the surface of the cake?



References:

<http://www.nos.org/secmathcour/eng/ch-24.pdf>

http://www.redmond.k12.or.us/14552011718214563/lib/14552011718214563/Lesson_10.7.pdf

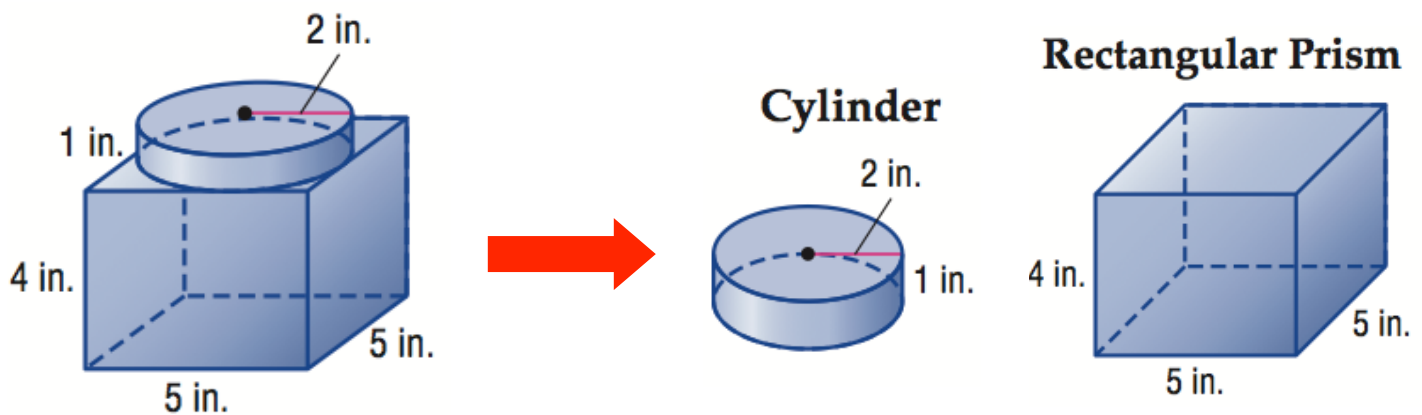
http://www.bigideasmath.com/protected/content/ipe/grade%207/07/g7_07_05.pdf

VOLUME OF COMPOSITE FIGURES

WHAT YOU'LL LEARN

- 1) Identify the different types of figures that make up the solid.
- 2) Calculate the volume of composite shapes.

Find the volume of the figure:



Find the volume of the cylinder.

$$V = \pi r^2 h$$

$$V = \pi(2)^2(1)$$

$$V = 4\pi$$

Find the volume of the prism.

$$V = lwh$$

$$V = 5(5)(4)$$

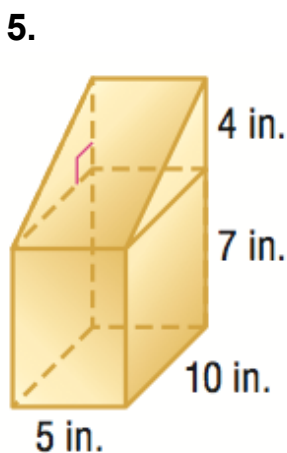
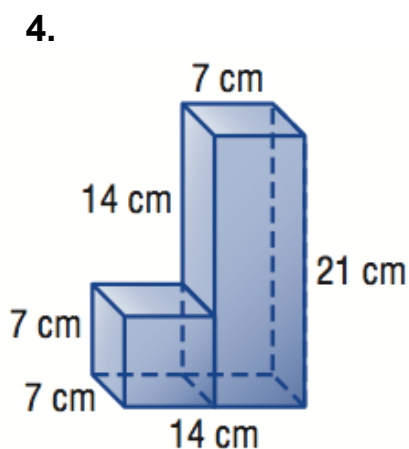
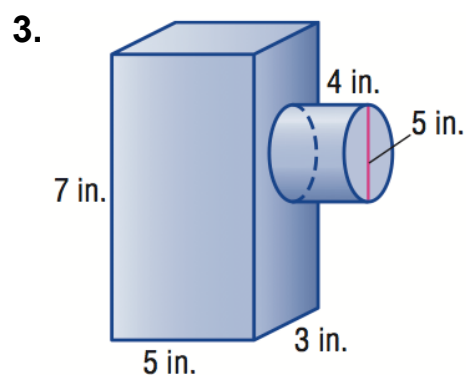
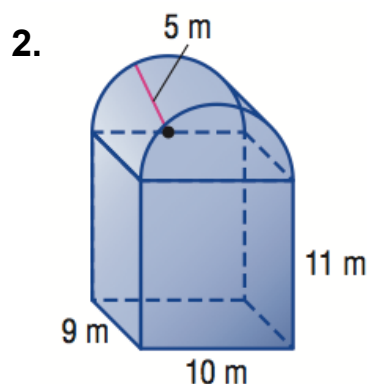
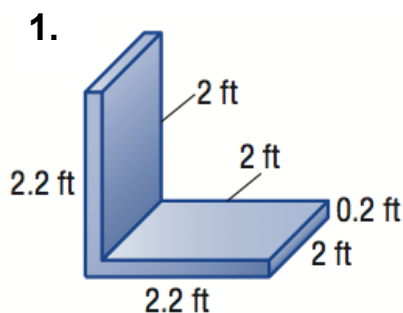
$$V = 100$$

$$\text{Total Volume} = 4\pi + 100$$

$$V \approx 112.57 \text{ in}^3$$

PRACTICE TEST:

Find the Volume of the following. Write your complete solutions, final answers correct to two decimal places. Use pi in your calculator.



THINKING TIME:

How is finding the volume and surface area of composite figures different from finding the volume and surface area of simple figures?

References:

<http://www.nos.org/secmathcour/eng/ch-24.pdf>

http://www.redmond.k12.or.us/14552011718214563/lib/14552011718214563/Lesson_10.7.pdf

http://www.bigideasmath.com/protected/content/ipe/grade%207/07/g7_07_05.pdf