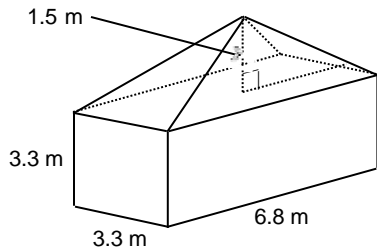


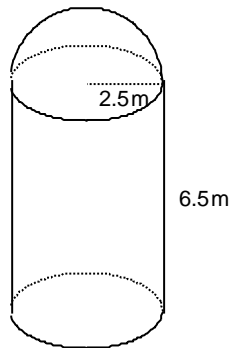
Lesson 6 Assignment

Short Answer

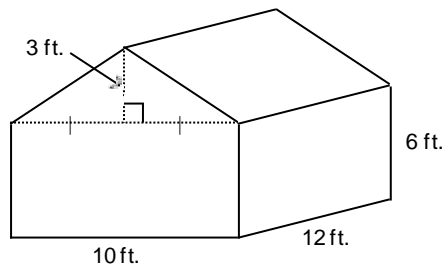
1. Determine the volume of this composite object, which is a right square prism and a right rectangular pyramid, to the nearest tenth of a cubic metre.



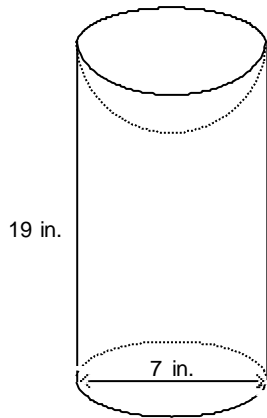
2. Determine the surface area of this composite object, which is a right cylinder and a hemisphere, to the nearest tenth of a square metre.



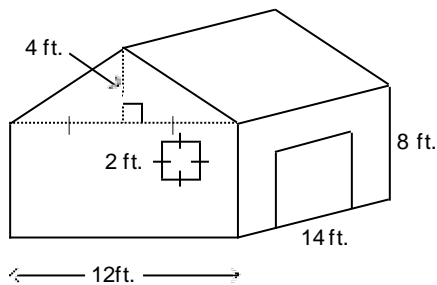
3. A garden shed is a composite object formed by a right rectangular prism with a right triangular prism as its roof. Determine the surface area of the garden shed to the nearest square foot.



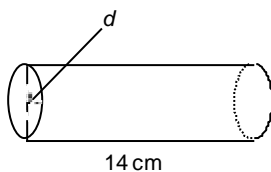
4. A racquetball just fits inside a cube that has an edge length equal to the diameter of the racquetball. The diameter of the racquetball is 5.9 cm. What is the volume of air in the cube to the nearest cubic centimetre?
5. A right cylinder has a hemisphere removed from the top. Determine the volume of the object, to the nearest cubic inch.



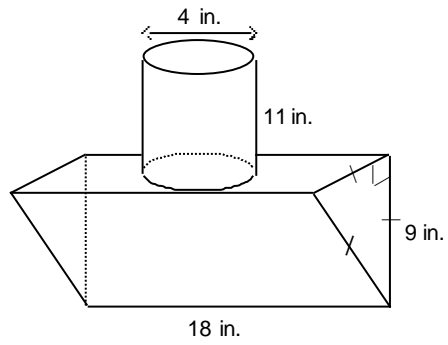
6. A barn is a composite object formed by a right rectangular prism with a right triangular prism as its roof. The square window on the barn has side length 2 ft. Farmer Fred wants to paint the entire surface of his barn, including the door, but not the window. Determine the surface area to be painted to the nearest square foot.



7. The volume of a cylindrical drinking straw is 9.3 cm^3 . Calculate the diameter of the straw, d , to the nearest tenth of a centimetre.

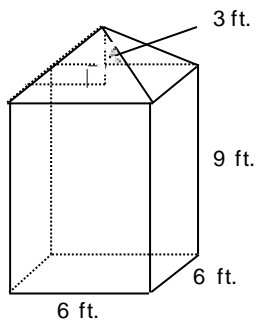


8. A pencil has a cylindrical body with a cone-shaped end. The cylinder is 5 cm long with a radius of 0.29 cm. The cone has a slant height of 1 cm and has the same radius as the cylinder. Determine the surface area of the pencil to the nearest tenth of a square centimetre.
9. Determine the surface area of this composite object, which is a right triangular prism and a right cylinder, to the nearest square inch.



Problem

10. Determine the surface area of this composite object, which is a right square prism and a right square pyramid, to the nearest square foot. Explain your answer.



Lesson 6 Assignment Answer Section

SHORT ANSWER

1. ANS:
85.3 m³
2. ANS:
161.0 m²
3. ANS:
434 square feet
4. ANS:
98 cm³
5. ANS:
641 cubic inches
6. ANS:
662 square feet
7. ANS:
0.9 cm
8. ANS:
10.3 cm²
9. ANS:
694 square inches

PROBLEM

10. ANS:
The surface area of the composite object is: area of the 4 rectangular faces of the prism + area of square base of the prism + area of 4 triangular faces of the pyramid

The area of the 4 rectangular faces of the prism, in square feet, is:

$$A = 4(6)(9)$$

$$A = 216$$

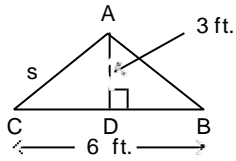
The area of the square base of the prism, in square feet, is:

$$A = (6)(6)$$

$$A = 36$$

To determine the surface area of the triangular faces, calculate the slant height, s .

Sketch a triangle to represent a triangular face.



Use the Pythagorean Theorem in right $\triangle ADB$.

$$s^2 = AD^2 + BD^2$$

$$s^2 = 3^2 + 3^2$$

$$s^2 = 9 + 9$$

$$s^2 = 18$$

$$s = \sqrt{18}$$

The area of the 4 triangular faces of the pyramid, in square feet, is:

$$A = 4\left(\frac{1}{2}\right)(6)(\sqrt{18})$$

$$A = 50.9116\dots$$

The surface area of the composite object, in square feet, is:

$$216 + 36 + 50.9116\dots = 302.9116\dots$$

The surface area of the composite object is approximately 303 square feet.