Lesson 21: Volume of Composite Solids

Classwork
Exercises 1–4

1.
     a.   Write an expression that can be used to find the volume of the chest shown below. Explain what each part of your expression represents. (Assume the ends of the top portion of the chest are semicircular.)
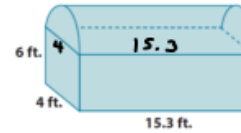
$$\text{Rectangular Prism} + \tfrac{1}{2}\text{ Cylinder}$$

$$\ell wh + \tfrac{1}{2}\left(\pi r^2 h\right)$$

$$6(4)(15.3) + \tfrac{1}{2}\left(\pi (2)^2 (15.3)\right) = 367.2 + 96.084$$

$$367.2 + \tfrac{1}{2}\left(\pi (4)(15.3)\right) \qquad \boxed{V = 463.284 \ ft^3}$$

$$367.2 + \tfrac{1}{2}(61.2)\pi$$

$$367.2 + 30.6\pi$$

6 ft.   4   15.3

4 ft.

15.3 ft.

     b.   What is the approximate volume of the chest shown above? Use 3.14 for an approximation of π. Round your final answer to the tenths place.