1. Find the total volume of the figures, and record your solution strategy.

   a. 
   
   ![Diagram a](image)
   
   Solution Strategy: I combined the side lengths of 5 cm and 5 cm for a total of 10 cm. Then I completed the volume formula.
   
   Volume: \(14 \text{ cm} \times 3 \text{ cm} \times 10 \text{ cm} = 420 \text{ cm}^3\)

   b. 
   
   ![Diagram b](image)
   
   Solution Strategy: I found the volume of each box and combined the two boxes together for the total volume.
   
   V = 7 in \times 3 \text{ in} \times 4 \text{ in} = 84 \text{ in}^3
   
   V = 15 \text{ in} \times 6 \text{ in} \times 4 \text{ in} = 360 \text{ in}^3
   
   \[\text{Volume: } 360 \text{ in}^3 + 84 \text{ in}^3 = 444 \text{ in}^3\]

   c. 
   
   ![Diagram c](image)
   
   Solution Strategy: I found the volume of each box and combined the two boxes together for the total volume.
   
   V = 4 \text{ cm} \times 4 \text{ cm} \times 3 \text{ cm} = 48 \text{ cm}^3
   
   V = 3 \text{ cm} \times 2 \text{ cm} \times 10 \text{ cm} = 60 \text{ cm}^3
   
   \[\text{Volume: } 60 \text{ cm}^3 + 48 \text{ cm}^3 = 108 \text{ cm}^3\]
   
   d. 
   
   ![Diagram d](image)
   
   Solution Strategy: I found the volume of each box and combined the two boxes together for the total volume.
   
   V = 8 \text{ m} \times 6 \text{ m} \times 3 \text{ m} = 144 \text{ m}^3
   
   V = 6 \text{ m} \times 3 \text{ m} \times 10 \text{ m} = 180 \text{ m}^3
   
   \[\text{Volume: } 144 \text{ m}^3 + 180 \text{ m}^3 = 324 \text{ m}^3\]
2. A sculpture (pictured below) is made of two sizes of rectangular prisms. One size measures $13 \text{ in} \times 8 \text{ in} \times 2 \text{ in}$. The other size measures $9 \text{ in} \times 8 \text{ in} \times 18 \text{ in}$. What is the total volume of the sculpture?

\[
\text{Volume A: } 13 \times 8 \times 2 = 208 \text{ in}^3
\]
\[
\text{Volume B: } 9 \times 8 \times 18 = 1,296 \text{ in}^3
\]
\[
\text{Total: } 208 + 1,296 = 1,504 \text{ in}^3
\]

3. The combined volume of two identical cubes is 128 cubic centimeters. What is the side length of each cube? Each side is 4 cm.

\[
\text{Volume of each cube: } 4 \times 4 \times 4 = 64 \text{ cm}^3
\]

4. A rectangular tank with a base area of 24 cm$^2$ is filled with water and oil to a depth of 9 cm. The oil and water separate into two layers when the oil rises to the top. If the thickness of the oil layer is 4 cm, what is the volume of the water?

\[
V_{\text{water}} = 24 \times 5 = 120 \text{ cm}^3
\]

5. Two rectangular prisms have a combined volume of 432 cubic feet. Prism A has half the volume of Prism B.

\[
V_{\text{Prism A}} = 144 \text{ ft}^3
\]
\[
V_{\text{Prism B}} = 288 \text{ ft}^3
\]

b. If Prism A has a base area of 24 ft$^2$, what is the height of Prism A?

\[
V = (l \times w) \times h \quad 144 \text{ ft}^3 = 24 \text{ ft}^2 \times \frac{h}{2}
\]

The height is $12$ feet.

c. If Prism B's base is $\frac{2}{3}$ the area of Prism A's base, what is the height of Prism B?

\[
\frac{2}{3} \times 24 = 16
\]
\[
V = (l \times w) \times h = 288 \text{ ft}^3 = 16 \text{ ft}^2 \times 18 \text{ ft}
\]

The height of Prism B is 18 feet.