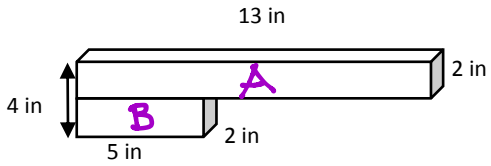
Name _____ Date _____

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

a.



Volume: $72\ in^3$

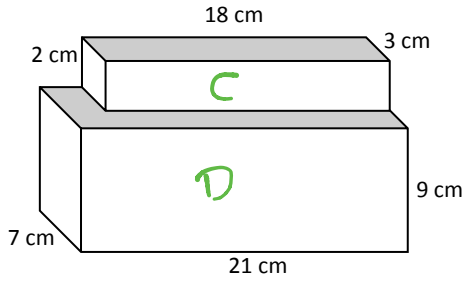
Solution Strategy:

Volume of A = $13\text{ in} \times 2\text{ in} \times 2\text{ in} = 52\ in^3$

Volume of B = $2\text{ in} \times 5\text{ in} \times 2\text{ in} = 20\ in^3$

Total = $52\ in^3 + 20\ in^3 = 72\ in^3$

b.



Volume: _____

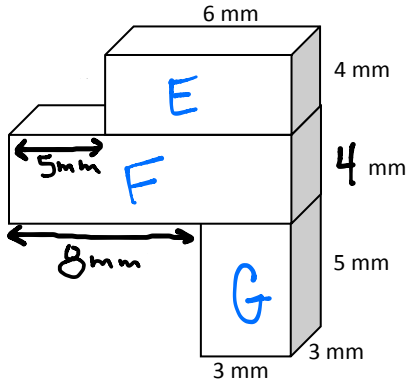
Solution Strategy:

Volume of C = $2\text{cm} \times 18\text{cm} \times 3\text{ cm} = 108\ cm^3$

Volume of D = $7\text{cm} \times 21\text{cm} \times 9\text{cm} = 1{,}323\ cm^3$

Total = $108\ cm^3 + 1{,}323\ cm^3 = 1{,}431\ cm^3$

c.



Volume: $72\ mm^3 + 132\ mm^3 + 45\ mm^3 = 249\ mm^3$

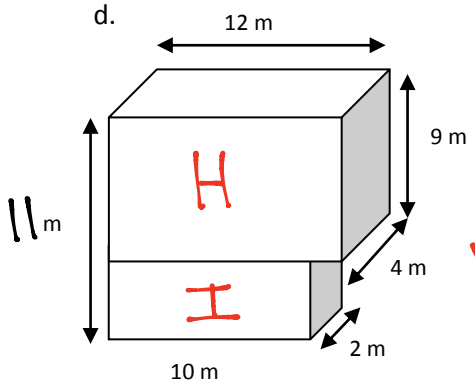
Solution Strategy:

$V_E = 3\text{ mm} \times 4\text{mm} \times 6\text{ mm} = 72\ mm^3$

$V_F = 11\text{ mm} \times 3\text{mm} \times 4\text{ mm} = 132\ mm^3$

$V_G = 3\text{mm} \times 3\text{mm} \times 5\text{mm} = 45\ mm^3$

d.



$V_H = 12\text{m} \times 9\text{m} \times 4\text{m} = 432\ m^3$

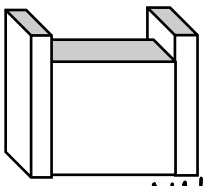
$V_I = 10\text{m} \times 2\text{m} \times 2\text{m} = 40\ m^3$

Volume: $432\ m^3 + 40\ m^3 = 472\ m^3$

Solution Strategy:

15m − 9m gives the height of I.

2. A planting box (pictured below) is made of two sizes of rectangular prisms. One type of prism measures 3 inches by 6 inches by 14 inches. The other type measures 15 inches by 5 inches by 10 inches. What is total volume of three such boxes?



Left and Right sides: $(3\text{in} \times 6\text{in} \times 14\text{in}) + (3\text{in} \times 6\text{in} \times 14\text{in})$

$= 252\ \text{in}^3 + 252\ \text{in}^3$

$= 504\ \text{in}^3$

Middle: $15\text{in} \times 5\text{in} \times 10\text{in}$

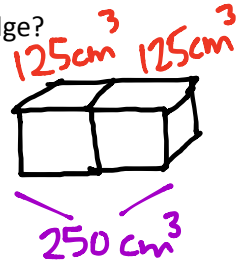
$= 750\ \text{in}^3$

$750\ \text{in}^3 + 504\ \text{in}^3 = 1254\ \text{in}^3$ is volume of one box

$1254 \times 3 = 3762$

Total volume = $3{,}762\ \text{in}^3$

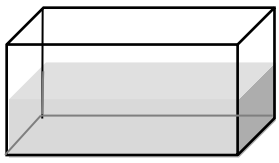
3. The combined volume of two identical cubes is 250 cubic centimeters. What is the measure of one cube's edge?



$5\text{cm} \times 5\text{cm} \times 5\text{cm} = 125\text{cm}$

The edge of one cube is 5 cm long.

4. A fish tank has a base area of 45 cm^2 and is filled with water to a depth of 12 cm. If the height of the tank is 25 cm, how much more water will be needed to fill the tank to the brim?



$V_{water} = 45\text{cm}^2 \times 12\text{cm}$

$= 540\ \text{cm}^3$

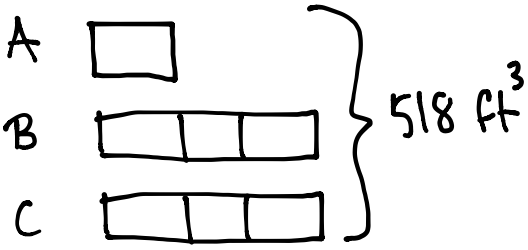
$V_{tank} = 45\ \text{cm}^2 \times 25\ \text{cm}$

$= 1{,}125\ \text{cm}^3$

$1125\ \text{cm}^3 - 540 = 585\ \text{cm}^3$

585 cm^3 more water is needed.

5. Three rectangular prisms have a combined volume of 518 cubic feet. Prism A has one-third the volume of Prism B, and Prisms B and C have equal volume. What is the volume of each prism?



7 units = 518 ft^3

÷7 ÷7

1 unit = 518 ÷ 7

= 74 ft^3

A = 74 ft^3

B = 74 × 3 = 222 ft^3

C = 222 ft^3