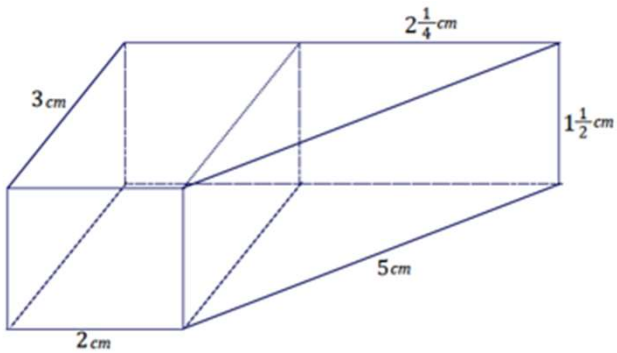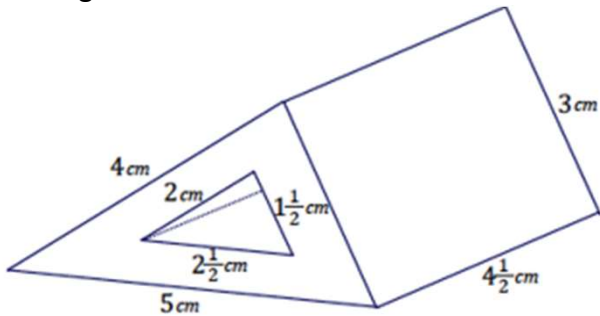# Volume of Composite Prisms Worksheets

1. The right trapezoidal prism is composed of a right rectangular prism joined with a right triangular prism. Find the volume of the right trapezoidal prism shown in the diagram.

2. Find the volume of the right prism shown in the diagram whose base is the region between two right triangles

Volume of Composite Prisms Worksheets

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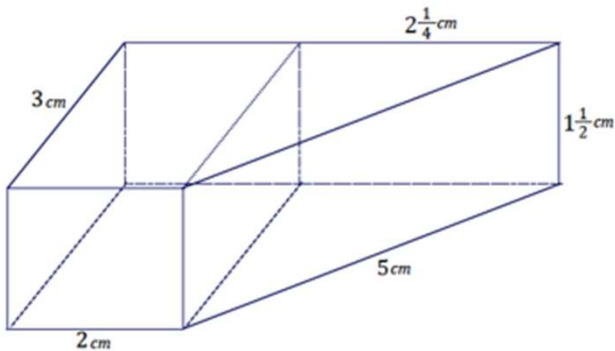

The volume of the trapezoidal prism is equal to the sum of the volumes of the rectangular and triangular prisms.

Volume of object
= Volume of rectangular prism
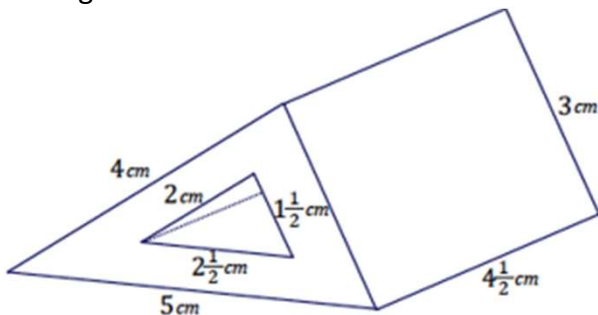+ Volume of triangular prism

Volume of rectangular prism:

$$\textbf{Volume}_{\textbf{rectangular prism}} = \textbf{Bh}$$
$$= (lw)h$$
$$= (3 \text{ cm} \cdot 2 \text{ cm}) \cdot 1\frac{1}{2}\text{cm}$$
$$= 9 \text{ cm}^3$$

Volume of triangular prism:

$$\textbf{Volume}_{\textbf{triangular prism}} = \textbf{Bh} = \left(\frac{1}{2}lw\right)h$$
$$= \left(\frac{1}{2} \cdot 3 \text{ cm} \cdot 2\frac{1}{4}\text{cm}\right) \cdot 1\frac{1}{2}\text{cm}$$
$$= 5\frac{1}{16} \text{ cm}^3$$

The volume of the object is $9 \text{ cm}^3 + 5\frac{1}{16} \text{ cm}^3 = 14\frac{1}{16} \text{ cm}^3.$

2. Find the volume of the right prism shown in the diagram whose base is the region between two right triangles

The volume of the right prism is equal to the difference of the volumes of the two triangular prisms.

Volume of object
$$= \textbf{Volume}_{\textbf{large prism}} - \textbf{Volume}_{\textbf{small prism}}$$

Volume of large prism:

$$\textbf{Volume}_{\textbf{large prism}} = \left(\frac{1}{2} \cdot 3 \text{ cm} \cdot 4 \text{ cm}\right)4\frac{1}{2}\text{cm}$$
$$= 27 \text{ cm}^3$$

Volume of small prism:

$$\textbf{Volume}_{\textbf{small prism}} = \left(\frac{1}{2} \cdot 1\frac{1}{2}\text{cm} \cdot 2 \text{ cm}\right)4\frac{1}{2}\text{cm}$$
$$= 6\frac{3}{4}\text{cm}^3$$

The volume of the object is $20\frac{1}{4}\text{cm}^3.$

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