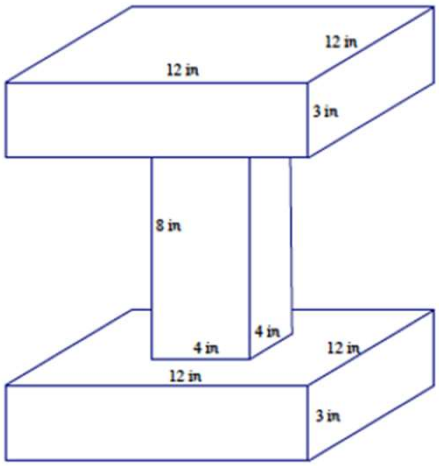
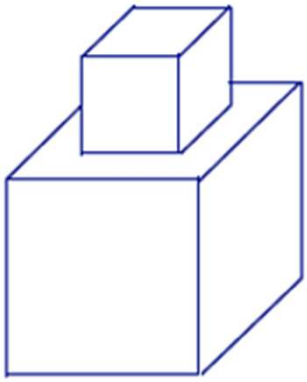
Volume of Composite Prisms Worksheets

1. Find the volume of the three-dimensional object composed of right rectangular prisms.



2. A smaller cube is stacked on top of a larger cube. An edge of the smaller cube measures $\frac{1}{2}$ **cm** in length, while the larger cube has an edge length three times as long. What is the total volume of the object?



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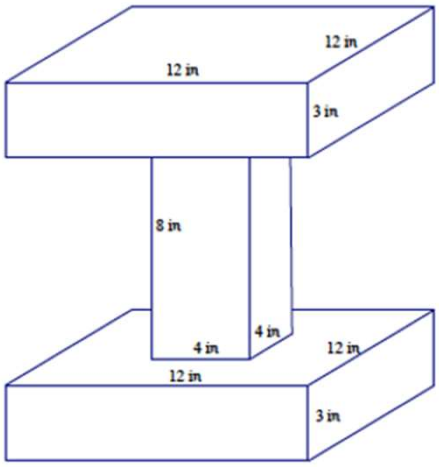


$$\text{Volume}_{\text{object}} = \text{Volume}_{\text{top and bottom prisms}} + \text{Volume}_{\text{middle prism}}$$

Volume of top and bottom prisms:

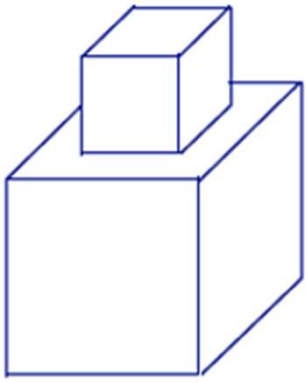
$$V = 2(12 \text{ in.} \cdot 12 \text{ in.} \cdot 3 \text{ in.})$$
$$= 864 \text{ in}^3$$

Volume of middle prism:

$$V = 4 \text{ in.} \cdot 4 \text{ in.} \cdot 8 \text{ in.}$$
$$= 128 \text{ in}^3$$

The volume of the object is $864 \text{ in}^3 + 128 \text{ in}^3 = 992 \text{ in}^3$.

2. A smaller cube is stacked on top of a larger cube. An edge of the smaller cube measures $\frac{1}{2}$ **cm** in length, while the larger cube has an edge length three times as long. What is the total volume of the object?



$$\text{Volume}_{\text{object}} = \text{Volume}_{\text{small cube}} + \text{Volume}_{\text{large cube}}$$

$$\text{Volume}_{\text{small cube}} = \left(\frac{1}{2} \text{ cm}\right)^3$$
$$= \frac{1}{8} \text{ cm}^3$$

$$\text{Volume}_{\text{large cube}} = \left(\frac{3}{2} \text{ cm}\right)^3$$
$$= \frac{27}{8} \text{ cm}^3$$

$$V = \frac{1}{8} \text{ cm}^3 + \frac{27}{8} \text{ cm}^3$$
$$= 3\frac{1}{2} \text{ cm}^3$$

The total volume of the object is $3\frac{1}{2} \text{ cm}^3$.