

Grade 6 · Volume of Rectangular Prisms · Worksheet

Common Core 6.G.A.2 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This worksheet gives Grade 6 students 20 problems on the volume of rectangular prisms, including prisms with fractional edge lengths and packing with unit cubes. The problems start with whole-number edges and move toward missing dimensions and mixed numbers.

The last six problems are word problems about a fish tank, a stage, a patio slab, a moving truck, shipping boxes, and a sandbox. Every problem practices Common Core standard 6.G.A.2. Write each formula, show the substitution, and label every answer in cubic units.

Grade 6 Common Core: 6.G.A.2

Problem 1: Whole-number edges

Find the volume of a rectangular prism that is 6 ft long, 4 ft wide, and 3 ft tall.

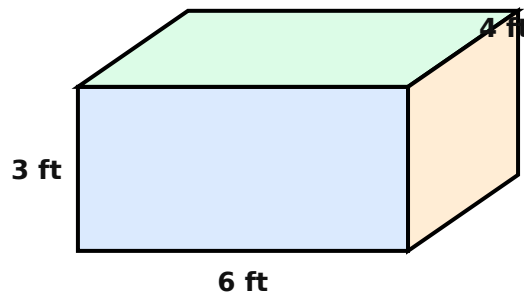
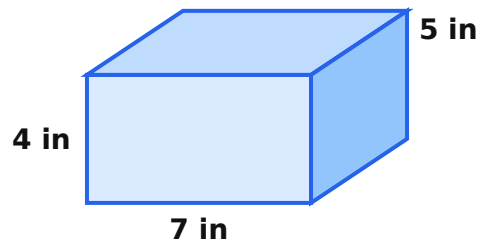


Figure for Problem 1.

Problem 2: Prism with labeled edges

Find the volume of the rectangular prism.



Rectangular prism: 7 in by 5 in by 4 in.

Problem 3: Box volume

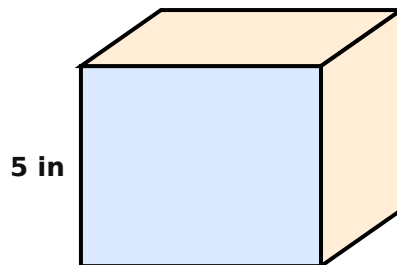
Find the volume of a box with length 7 in, width 5 in, and height 2 in.

Problem 4: Volume of a cube

A cube-shaped gift box has edges of 6 in. Find its volume.

Problem 5: Base area times height

A prism has a base area of 24 in^2 and a height of 5 in. Find its volume.



base area $B = 24 \text{ sq in}$

Figure for Problem 5.

Problem 6: Height from base area

A prism has a volume of 252 ft^3 and a base area of 36 ft^2 . Find its height.

Problem 7: Fractional width

Find the volume of a prism that is 4 in long, $\frac{1}{2}$ in wide, and 3 in tall.

Problem 8: Two fraction edges

Find the volume of a prism that is $\frac{2}{3}$ ft long, $\frac{3}{4}$ ft wide, and 6 ft tall.

Problem 9: Mixed-number edges

Find the volume of a prism that is $2\frac{1}{2}$ ft long, $1\frac{1}{2}$ ft wide, and 2 ft tall.

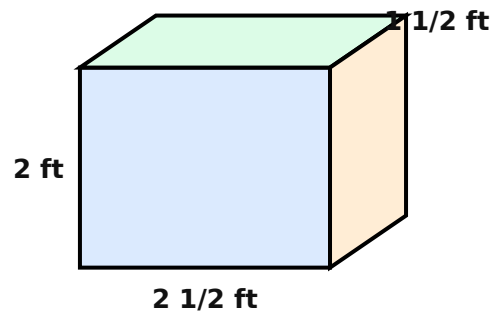


Figure for Problem 9.

Problem 10: Missing height

A prism has a volume of 150 ft^3 , a length of 10 ft, and a width of 5 ft. Find its height.

Problem 11: Missing length

A prism has a volume of 30 ft^3 , a width of $2\frac{1}{2}$ ft, and a height of 4 ft. Find its length.

Problem 12: Packing with cubes

A prism is 1 in long, $\frac{3}{4}$ in wide, and $\frac{1}{2}$ in tall. It is packed with cubes that have edges of $\frac{1}{4}$ in.

(a) How many cubes fit? (b) What is the volume of one cube? (c) What is the volume of the prism?

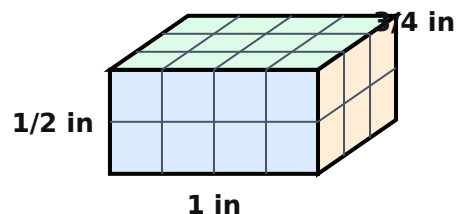
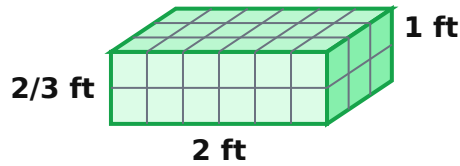


Figure for Problem 12.

Problem 13: Packing with thirds

A prism is 2 ft long, 1 ft wide, and $\frac{2}{3}$ ft tall. It is packed with cubes that have edges of $\frac{1}{3}$ ft.

(a) How many cubes fit? (b) What is the volume of one cube? (c) What is the volume of the prism?



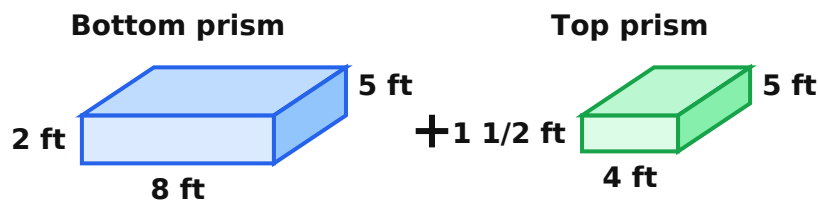
The prism is packed with cubes of edge $\frac{1}{3}$ ft.

Problem 14: Cube versus box

Diego has a box that is 12 in long, 8 in wide, and 5 in tall. His sister has a cube with edges of 8 in. Which container holds more, and how much more?

Problem 15: Two-step stage

A small stage is built from two rectangular prisms stacked together. The bottom prism is 8 ft by 5 ft by 2 ft. The top prism is 4 ft by 5 ft by $1\frac{1}{2}$ ft. Find the total volume of the stage.



The stage is built from two prisms.

Problem 16: Aquarium

Jamal's fish tank is a rectangular prism 20 in long, 10 in wide, and 12 in tall. The water is 9 in deep. Find the volume of the water, and then the volume of water that must be added to fill the tank.

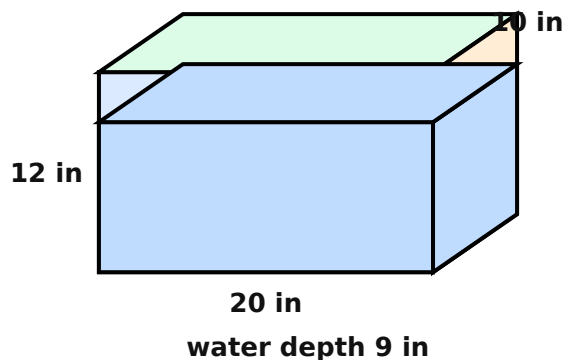
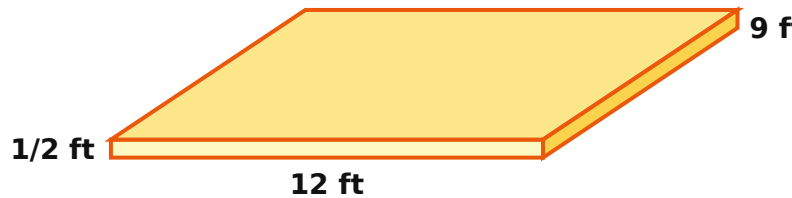


Figure for Problem 16.

Problem 17: Patio slab

Jamal's family pours a concrete patio slab that is 12 ft long, 9 ft wide, and $\frac{1}{2}$ ft thick. Concrete costs \$8.50 per cubic foot. Find the volume of the slab and the cost of the concrete.



A concrete patio slab: 12 ft by 9 ft by $\frac{1}{2}$ ft.

Problem 18: Moving truck

The cargo area of a moving truck is 12 ft long, 6 ft wide, and 6 ft tall. Each moving box is 2 ft by $1\frac{1}{2}$ ft by $1\frac{1}{2}$ ft. How many boxes fit in the cargo area with no gaps?

Problem 19: Storage boxes

Shipping boxes are $2\frac{1}{2}$ ft by 2 ft by $1\frac{1}{2}$ ft. A storage space is 10 ft by 6 ft by 3 ft. How many boxes fit in the space with no gaps?

Problem 20: Sandbox

A sandbox is 6 ft long and $4\frac{1}{2}$ ft wide. Maya fills it with sand to a depth of $\frac{3}{4}$ ft. Sand costs \$4 per cubic foot. Find the volume of sand and the total cost.

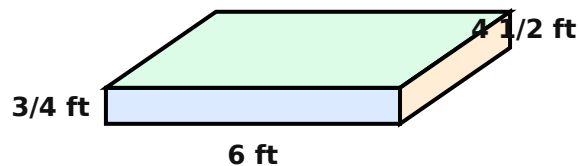


Figure for Problem 20.