

Grade 5 · Volume of Rectangular Prisms · Worksheet

Common Core 5.MD.C.3, 5.MD.C.4, 5.MD.C.5 · mathovore.fr

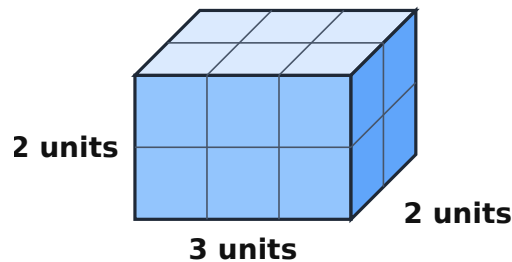
Name: _____ Date: ____/____/____ Score: _____

These 22 problems practice volume of rectangular prisms: counting unit cubes, using $V = l \times w \times h$ and $V = B \times h$, finding missing edges, and adding volumes of composite solids (5.MD.C.3, 5.MD.C.4, 5.MD.C.5). The last problems use real situations such as sandboxes, fish tanks, and moving trucks.

Grade 5 Common Core: 5.MD.C.3 · 5.MD.C.4 · 5.MD.C.5

Problem 1: Counting unit cubes

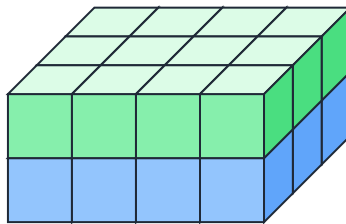
Each small cube is 1 cubic unit. Find the volume of the prism.



A prism built from unit cubes.

Problem 2: Counting layers

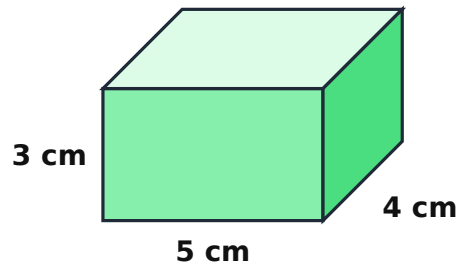
The prism is built from layers of cubes. Find the number of cubes in one layer, the number of layers, and the volume.



Blue and green show the two layers.

Problem 3: Volume in centimeters

Find the volume of a rectangular prism that is 5 cm long, 4 cm wide, and 3 cm high.



Prism with its three edges labeled.

Problem 4: Volume in feet

Find the volume of a prism that is 8 ft long, 2 ft wide, and 6 ft high.

Problem 5: Using base area

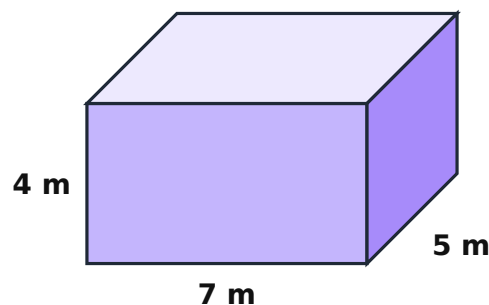
The base of a prism has an area of 20 square inches. The prism is 7 inches high. Find the volume.

Problem 6: Volume of a cube

Find the volume of a cube with edges 6 inches long.

Problem 7: Base first, then height

A prism has a rectangular base 7 m by 5 m and a height of 4 m. Find the area of the base, then the volume.



A prism with a 7 m by 5 m base.

Problem 8: Missing height

A prism has a volume of 90 cubic centimeters. Its length is 6 cm and its width is 5 cm. Find the height.

Problem 9: Height from base area

A prism has a volume of 144 cubic feet and a base area of 36 square feet. Find its height.

Problem 10: Missing length

A prism has a volume of 120 cubic inches, a width of 4 in, and a height of 5 in. Find the length.

Problem 11: Which holds more

Prism A is 6 in by 4 in by 5 in. Prism B is 7 in by 3 in by 6 in. Which has the greater volume, and by how much?

Problem 12: Cubes in layers

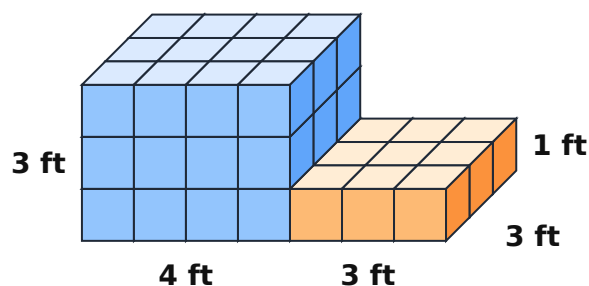
A prism is built from 4 layers. Each layer has 15 unit cubes. Find the volume.

Problem 13: Choose the unit

A box is 10 in long, 6 in wide, and 4 in high. Find the volume and write the correct unit.

Problem 14: Composite solid, two parts

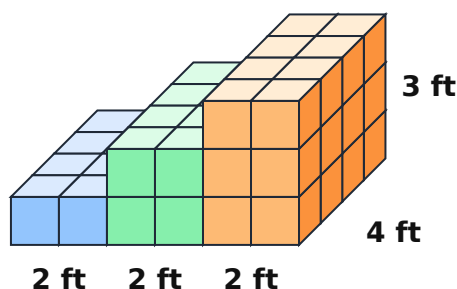
The solid is made of two rectangular prisms. Find its volume.



Blue prism and orange prism.

Problem 15: Staircase solid

A set of steps is 4 ft wide. The three steps are 2 ft long each, and they are 1 ft, 2 ft, and 3 ft high. Find the volume of the steps.



Three prisms side by side.

Problem 16: Packing a box

A shipping box is 12 in long, 9 in wide, and 6 in high. How many 1-inch cubes fill the box exactly?

Problem 17: Check a prism

Maya says a prism that is 5 units long, 3 units wide, and 2 units high has a volume of 30 cubic units. Is she right? Explain.

Problem 18: Sandbox

A school sandbox is 8 ft long, 5 ft wide, and 1 ft deep. Sand comes in bags of 2 cubic feet. How many bags fill the sandbox?

Problem 19: Fish tank

Jamal's fish tank is 24 in long, 12 in wide, and 10 in high. He fills it with water to a height of 8 in. How many cubic inches of water are in the tank, and how many more cubic inches would fill it to the top?

Problem 20: Storage boxes

Mei stacks two storage boxes in a closet. One box is 6 ft by 4 ft by 3 ft. The other is 4 ft by 4 ft by 2 ft. What is the total volume of the two boxes?

Problem 21: Filling a pool

A pool is 15 ft long, 10 ft wide, and 4 ft deep. A pump adds 50 cubic feet of water each hour. How many hours does it take to fill the pool?

Problem 22: Moving truck

A moving truck has a cargo space that is 10 ft long, 8 ft wide, and 6 ft high. Each moving box is a cube with 2-ft edges. How many boxes fit if the space is packed completely?