

Volume of Rectangular Prisms

Grade 5 • MATH • Volume of rectangular prisms with unit cubes and formulas • Standards: 5.MD.C.5

Find the volume of each rectangular prism. Show your work and include cubic units in your answer.

1. A rectangular prism has a length of 4 cm, a width of 2 cm, and a height of 3 cm. What is its volume?
2. A box measures 5 inches long, 5 inches wide, and 2 inches tall. Find the volume.
3. A rectangular prism is built with unit cubes. The bottom layer has 12 cubes arranged in 3 rows of 4 cubes. There are 2 layers. What is the volume?
4. A storage container is 6 feet long, 3 feet wide, and 4 feet high. What is the volume of the container?
5. Maya builds a rectangular prism using unit cubes. It is 7 cubes long, 2 cubes wide, and 5 cubes tall. Find the volume.
6. A rectangular fish tank has dimensions of 8 inches by 6 inches by 10 inches. Calculate its volume.
7. A rectangular prism has a base area of 24 square meters and a height of 5 meters. What is its volume?
8. The volume of a rectangular prism is 180 cubic cm. Its length is 9 cm and its width is 5 cm. What is the height?
9. A classroom is shaped like a rectangular prism measuring 12 yards long, 8 yards wide, and 3 yards high. Find the volume of the classroom.
10. Two identical rectangular prisms are stacked on top of each other. Each prism is 7 cm long, 4 cm wide, and 3 cm tall. What is the total volume of both prisms combined?

Answer Key — Volume of Rectangular Prisms

For the teacher / parent. Do not distribute with the worksheet.

1. 24 cubic cm (*Volume = length $\times$ width $\times$ height = $4 \times 2 \times 3 = 24$ cubic cm*)
2. 50 cubic inches (*Volume = $5 \times 5 \times 2 = 50$ cubic inches*)
3. 24 cubic units (*Volume = 12 cubes per layer $\times$ 2 layers = 24 cubic units*)
4. 72 cubic feet (*Volume = $6 \times 3 \times 4 = 72$ cubic feet*)
5. 70 cubic units (*Volume = $7 \times 2 \times 5 = 70$ cubic units*)
6. 480 cubic inches (*Volume = $8 \times 6 \times 10 = 480$ cubic inches*)
7. 120 cubic meters (*Volume = base area $\times$ height = $24 \times 5 = 120$ cubic meters*)
8. 4 cm (*Height = volume $\div$ (length $\times$ width) = $180 \div (9 \times 5) = 180 \div 45 = 4$ cm*)
9. 288 cubic yards (*Volume = $12 \times 8 \times 3 = 288$ cubic yards*)
10. 168 cubic cm (*Volume of one prism = $7 \times 4 \times 3 = 84$ cubic cm; Total volume = $84 \times 2 = 168$ cubic cm*)