Volume of Prisms and Cylinders

Grade 9–10 Math · Grades 9–10 · About 25 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTISE

- Calculate the volume of a rectangular prism and find a missing length
- Calculate the volume of a prism from its cross-section
- Calculate the volume of a cylinder

WORKED EXAMPLE

A cylinder has a radius of 2 cm and a height of 7 cm. Find its volume to 1 decimal place.

1. Find the area of the circular cross-section: $\pi \times 2^2 = 12.566...$
2. Multiply by the height: $12.566... \times 7 = 87.964...$
3. Round to 1 decimal place: 88.0 cm^3.

Answer: 88.0 cm^3

Questions

Show your working in the space under each question.

1. A rectangular prism measures 5 cm by 4 cm by 3 cm. Find its volume.

2. A cube has sides of 6 cm. Find its volume.

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3. A rectangular prism has a volume of 240 cm^3. Its length is 10 cm and its width is 6 cm. Find its height.

4. A triangular prism has a cross-section that is a triangle with base 6 cm and height 4 cm. The prism is 10 cm long. Find its volume.

5. A prism has a cross-section of area 15 cm^2 and a length of 9 cm. Find its volume.

6. A cylinder has a radius of 3 cm and a height of 10 cm. Find its volume to 1 decimal place.

7. A cylinder has a diameter of 10 cm and a height of 12 cm. Find its volume to 1 decimal place.

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8. A tank is a rectangular prism measuring 50 cm by 40 cm by 30 cm. How many litres of water does it hold when full? (1 litre = 1000 cm^3)

Answers: Volume of Prisms and Cylinders

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	A rectangular prism measures 5 cm by 4 cm by 3 cm. Find its volume.	**60 cm³**
2	A cube has sides of 6 cm. Find its volume.	**216 cm³**
3	A rectangular prism has a volume of 240 cm³. Its length is 10 cm and its width is 6 cm. Find its height.	**4 cm**
4	A triangular prism has a cross-section that is a triangle with base 6 cm and height 4 cm. The prism is 10 cm long. Find its volume.	**120 cm³**
5	A prism has a cross-section of area 15 cm² and a length of 9 cm. Find its volume.	**135 cm³**
6	A cylinder has a radius of 3 cm and a height of 10 cm. Find its volume to 1 decimal place.	**282.7 cm³**
7	A cylinder has a diameter of 10 cm and a height of 12 cm. Find its volume to 1 decimal place.	**942.5 cm³**
8	A tank is a rectangular prism measuring 50 cm by 40 cm by 30 cm. How many litres of water does it hold when full? (1 litre = 1000 cm³)	**60 litres**

TUTOR TIP

The volume of any prism is the area of the cross-section multiplied by the length. A cylinder is a prism with a circular cross-section.

Stuck on a question? Work through it live with a tutor.

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