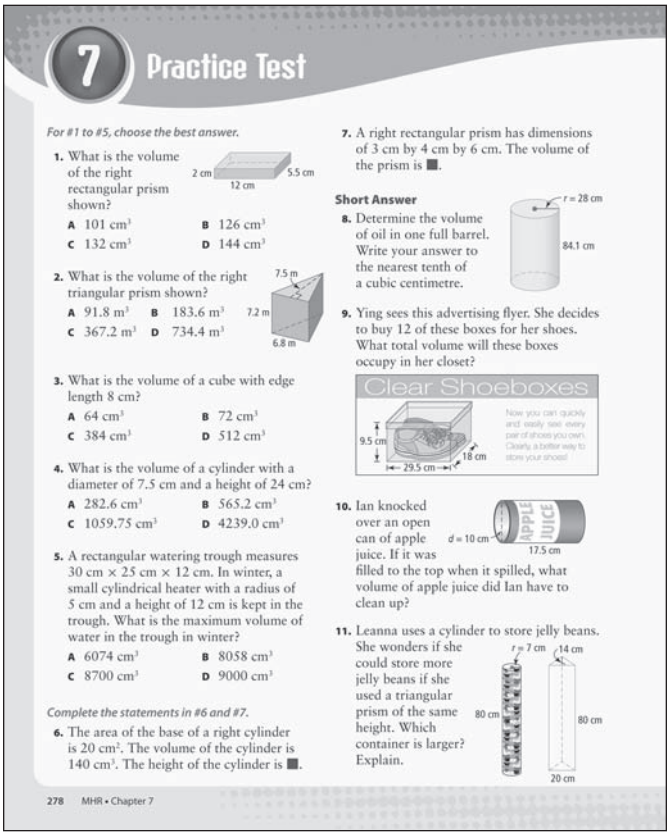
7 Practice Test


7 Practice Test

For #1 to #5, choose the best answer.

1. What is the volume of the right rectangular prism shown?
A 101 cm³ B 126 cm³ C 132 cm³ D 144 cm³

2. What is the volume of the right triangular prism shown?
A 91.8 m³ B 183.6 m³ C 367.2 m³ D 734.4 m³

3. What is the volume of a cube with edge length 8 cm?
A 64 cm³ B 72 cm³ C 384 cm³ D 512 cm³

4. What is the volume of a cylinder with a diameter of 7.5 cm and a height of 24 cm?
A 282.6 cm³ B 565.2 cm³ C 1059.75 cm³ D 4239.0 cm³

5. A rectangular watering trough measures 30 cm × 25 cm × 12 cm. In winter, a small cylindrical heater with a radius of 5 cm and a height of 12 cm is kept in the trough. What is the maximum volume of water in the trough in winter?
A 6074 cm³ B 8058 cm³ C 8700 cm³ D 9000 cm³

Complete the statements in #6 and #7.

6. The area of the base of a right cylinder is 20 cm². The volume of the cylinder is 140 cm³. The height of the cylinder is ■.

7. A right rectangular prism has dimensions of 3 cm by 4 cm by 6 cm. The volume of the prism is ■.

Short Answer

8. Determine the volume of oil in one full barrel. Write your answer to the nearest tenth of a cubic centimetre.

9. Ying sees this advertising flyer. She decides to buy 12 of these boxes for her shoes. What total volume will these boxes occupy in her closet?

Clear Shoeboxes
Now you can quickly and easily see every pair of shoes you own. Clearly a better way to store your shoes!

10. Ian knocked over an open can of apple juice. If it was filled to the top when it spilled, what volume of apple juice did Ian have to clean up?

11. Leanna uses a cylinder to store jelly beans. She wonders if she could store more jelly beans if she used a triangular prism of the same height. Which container is larger? Explain.

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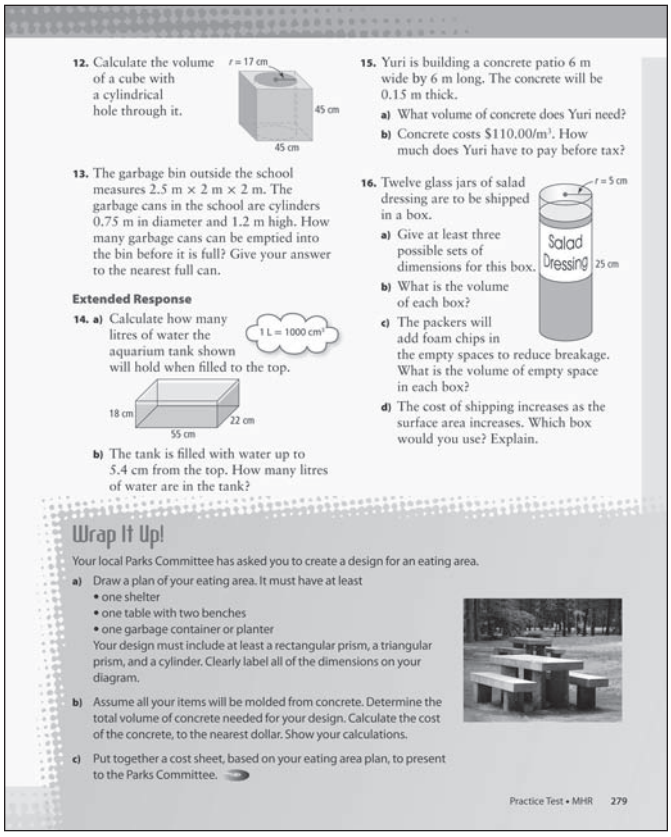
12. Calculate the volume of a cube with a cylindrical hole through it.

13. The garbage bin outside the school measures 2.5 m × 2 m × 2 m. The garbage cans in the school are cylinders 0.75 m in diameter and 1.2 m high. How many garbage cans can be emptied into the bin before it is full? Give your answer to the nearest full can.

Extended Response

14. a) Calculate how many litres of water the aquarium tank shown will hold when filled to the top.

b) The tank is filled with water up to 5.4 cm from the top. How many litres of water are in the tank?

15. Yuri is building a concrete patio 6 m wide by 6 m long. The concrete will be 0.15 m thick.
a) What volume of concrete does Yuri need?
b) Concrete costs $110.00/m³. How much does Yuri have to pay before tax?

16. Twelve glass jars of salad dressing are to be shipped in a box.
a) Give at least three possible sets of dimensions for this box.
b) What is the volume of each box?
c) The packers will add foam chips in the empty spaces to reduce breakage. What is the volume of empty space in each box?
d) The cost of shipping increases as the surface area increases. Which box would you use? Explain.

Wrap It Up!

Your local Parks Committee has asked you to create a design for an eating area.

a) Draw a plan of your eating area. It must have at least
• one shelter
• one table with two benches
• one garbage container or planter
Your design must include at least a rectangular prism, a triangular prism, and a cylinder. Clearly label all of the dimensions on your diagram.

b) Assume all your items will be molded from concrete. Determine the total volume of concrete needed for your design. Calculate the cost of the concrete, to the nearest dollar. Show your calculations.

c) Put together a cost sheet, based on your eating area plan, to present to the Parks Committee.

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***MathLinks 8*, pages 278–279**

Suggested Timing
40–50 minutes

Materials
- ruler
- calculator
- prisms and cylinders (e.g., cereal boxes, cans)

Blackline Masters
BLM 7–13 Chapter 7 Test

Planning Notes

Make any prisms and cylinders (e.g., cereal boxes, cans) used throughout the chapter available to students wishing to use them. Having manipulatives present helps to clarify understanding for some students.

Have students start the practice test by writing the question numbers in their notebooks. Have them indicate questions with which they need a little help, a lot of help, or no help. Have students first complete the questions they know they can do, followed by those they know something about. Finally, have students do their best on the questions that they are struggling with.

This practice test can be assigned as an in-class or take-home assignment. Provide students with the number of questions they can comfortably do in one class. These are the minimum questions that will meet the related curriculum outcomes: #1, #2, #4–#6, #8, #11, and #13.

Study Guide

Question(s)	Section(s)	Refer to	The student can …
1, 3, 7	7.1 7.2	Example 1 Example 1	✓ determine the volume of a right rectangular prism, right triangular prism, and right cylinder ✓ use a formula to determine the volume of a right rectangular prism
2	7.1 7.2	Example 1 Example 2	✓ determine the volume of a right rectangular prism, right triangular prism, and right cylinder ✓ use a formula to determine the volume of a right triangular prism
6	7.1	Example 1	✓ explain the meaning of volume
9, 13	7.2	Example 3	✓ use a formula to determine the volume of a right triangular prism
11	7.2 7.3 7.4	Example 2 Example 1 Example 3	✓ use a formula to determine the volume of a right triangular prism ✓ use a formula to determine the volume of a cylinder ✓ solve problems involving right rectangular prisms, right triangular prisms, and right cylinders
4, 10	7.3	Example 2	✓ use a formula to determine the volume of a cylinder
8	7.3	Example 1	✓ use a formula to determine the volume of a cylinder
5, 12, 13	7.4	Example 3	✓ solve problems involving right rectangular prisms, right triangular prisms, and right cylinders
14, 15	7.4	Example 1	✓ solve problems involving right rectangular prisms, right triangular prisms, and right cylinders
16	7.4	Example 2	✓ solve problems involving right rectangular prisms, right triangular prisms, and right cylinders

Answers

Chapter 7 Practice Test

1. C **2.** B **3.** D **4.** C **5.** B **6.** 7 cm **7.** 72 cm^3

8. 207 034 0 cm^3 **9.** 60 534 cm^3 **10.** 1373.75 cm^3

11. Answers may vary. Example: The cylindrical container is larger. The volume of the cylinder is 12 308.8 cm^3. The volume of the triangular prism is 11 200 cm^3.

12. 50 289.3 cm^3 **13.** 19 cans

14. a) 21.78 L **b)** 15.246 L

15. a) 5.4 m^3 **b)** $594.00

16. a) Answers may vary. Example: Three possible dimensions for the box are 20 cm × 30 cm × 50 cm; 20 cm × 20 cm × 75 cm; and 40 cm × 30 cm × 25 cm.

b) 30 000 cm^3 **c)** 6450 cm^3

d) Answers may vary. Example: Use the box with the smallest surface area.

- The box with dimensions of 40 cm × 30 cm × 25 cm has a surface area of 5900 cm^2. This box has the smallest surface area.
- The box with dimensions of 20 cm × 30 cm × 50 cm has a surface area of 6200 cm^2.
- The box with dimensions of 20 cm × 20 cm × 75 cm has a surface area of 6800 cm^2.

Assessment	Supporting Learning
Assessment *as* Learning	
Chapter 7 Self-Assessment Have students review their earlier responses in the What I Need to Work On section of their chapter Foldable.	• Have students use their responses on the practice test and work they completed earlier in the chapter to identify areas in which they may need to reinforce their understanding of skills or concepts. Before the chapter test, coach them in the areas in which they are having difficulties.
Assessment *of* Learning	
Chapter 7 Test After students complete the practice test, you may wish to use **BLM 7–13 Chapter 7 Test** as a summative assessment.	• Encourage students to draw and label drawings when appropriate to help solve problems. • Consider allowing students to use their chapter Foldable. • Consider using the Math Games on page 280 or the Challenge in Real Life on page 281 to assess the knowledge and skills of students who have difficulty with tests.