Chapter 8 Review

Student Text Pages
470–471

Suggested Timing
80 min

Related Resources
BLM 8.CR.1 Chapter 8 Review

Ongoing Assessment

- Upon Completing the Chapter Review, students can also answer questions such as the following:
  - *Did you work by yourself or with others?*
  - *Which questions did you find easy? Difficult? Why?*
  - *How often did you have to check the related example in the text to help you with the questions? For which questions did you have to do this?*

Using the Chapter Review

Each question reviews different skills and concepts. The students might work independently to complete the Chapter Review, then with a partner to compare solutions. Alternatively, the Chapter Review could be assigned to reinforce skills and concepts in preparation for the Practice Test. Provide an opportunity for the students to discuss any questions containing strategies or questions with concepts they find difficult. Use **BLM 8.CR.1 Chapter 8 Review** for the Chapter Review.

After students complete the Chapter Review, encourage them to make a list of questions that caused them difficulty, and include the related sections and teaching examples. They can use this to focus their studying for a final test on the chapter's content.

Chapter 8 Practice Test

Student Text Pages
472–473

Suggested Timing
50–70 min

Related Resources
BLM 8.PT.1 Chapter 8 Practice Test

BLM 8.CT.1 Chapter 8 Test

Summative Assessment

After students complete **BLM 8.PT.1 Chapter 8 Practice Test**, you may wish to use **BLM 8.CT.1 Chapter 8 Test** as a summative assessment.

Accommodations

Perceptual—Assign specific questions to groups of students and have them present their answers to the class.

Motor—Allow students to do fewer questions when completing the Chapter Review and Chapter Test.

Memory—Provide formula sheets for the students to use when completing the questions in this section.

Study Guide

Use the following study guide to direct students who have difficulty with specific questions to appropriate examples to review.

Question	Section(s)	Refer to
1	8.7	Example 1 (page 463)
2	8.2	Example 2 (page 429)
3	8.3	Example 1 (page 437)
4	8.4	Example (page 446)
5	8.1	Example 2 (page 420)
6	8.3	Example 1, 2 (pages 437, 438)
7	8.3	Example 1 (page 437)
8	8.7	Example 1 (page 463)
9	8.4	Example (page 446)
10	8.5	Example 1 (page 452)
11	8.7	Example 2 (page 464)
12	8.7	Example 2 (page 464)

Using the Practice Test

This Practice Test can be assigned as an in-class or take-home assignment. If it is used as an assessment, use the following guidelines to help you evaluate the students.

Can students do each of the following?

- Apply the Pythagorean theorem where appropriate to determine unknown dimensions in measurement problems
- Calculate the perimeter and area of composite figures (combinations of rectangles, triangles, parallelograms, trapezoids, and circles)
- Calculate the surface area and volume of rectangular prisms, triangular prisms, cylinders, and pyramids
- Draw the net for a rectangular prism, triangular prism, cylinder, and pyramid
- Recognize from their investigative experiences that the volume of a pyramid is $\frac{1}{3}$ the volume of a prism with the same base and height
- Calculate the surface area of a cone given its radius and slant height
- Calculate the surface area of a cone given its height and either the radius or the slant height
- Calculate the volume of a cone given its radius or diameter and its height
- Recognize from their investigative experiences that the volume of a cone is $\frac{1}{3}$ the volume of a cylinder with the same base and height
- Calculate the height of a cone given its radius and slant height in order to determine the volume of the cone
- Calculate the surface area of a sphere
- Calculate the volume of a sphere
- Calculate the surface area and volume of composite figures (combinations of prisms, pyramids, cones, cylinders, and spheres or hemispheres)
- Solve problems that involve the surface area and volume of prisms, pyramids, cylinders, cones, spheres, and composite figures

Chapter 8 Problem Wrap-up

Student Text Pages
473

Suggested Timing
30–60 min

Tools
- compasses
- grid paper
- centimetre grid paper

Technology
- graphing calculators

Related Resources
BLM G10 Grid Paper

BLM G9 Centimetre Grid Paper

BLM 8.CP.1 Chapter 8 Problem Wrap-Up Rubric

Summative Assessment

- Use **BLM 8.CP.1 Chapter 8 Problem Wrap-Up Rubric** to assess student achievement.

Using the Chapter Problem

Students can complete the Chapter Problem individually or with a partner.

The Chapter Problem Wrap-Up can be used as an assessment piece, either completed in class or at home.

The Chapter Problem is designed to allow for student creativity. The diameter of the cylindrical base is given, but otherwise the students will determine the dimensions of the fountain. You may wish to set up a spreadsheet with the relevant formulas to check the dimensions chosen by each individual student.

The cone can be set on top of the cylindrical base, inside the cylinder, or inverted on the cylinder. Students will need to fully describe the fountain and its construction on their sketch.

Ask students to submit their sketch showing all dimensions in advance to allow you to identify any problems that students may encounter with their design. Conference with particular students who may need guidance with their design to complete the next steps in calculating the volume and surface area of their fountains.

Although students have had lots of experience with surface area and volume of three-dimensional shapes in this chapter, many of them will benefit from having models of these shapes available in the classroom. You may wish to modify the first part of the problem to require students to make a scale model of their fountain as well as a sketch. Another useful aid would be to have posters visible in the classroom showing the relevant surface area and volume formulas. Ensure that graphing calculators are available for student use.

If the Chapter Problem questions have been assigned throughout the chapter, review each of them, emphasizing the skills and formulas that were used. This could be done as a class or in small groups, perhaps using a jigsaw technique.

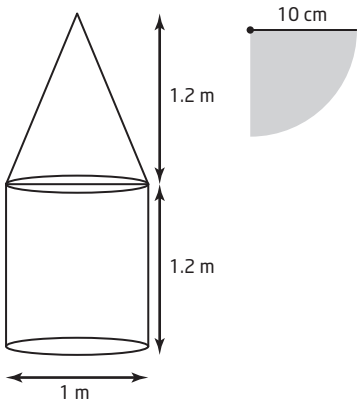
Due to the complexity of this problem, students would benefit from an opportunity to brainstorm approaches to the problem, with a partner or in small groups, before they begin. One strategy is to allow students to discuss the problem but not to write anything down until they begin individual work. Another strategy is to introduce the problem one day, but not assign it to be completed until another day.

When assigning this problem, it is important to allow enough time for students to think, plan, and complete the work. Thirty minutes will be required for a strong class and more for an average class.

Students will find it useful to have compasses in order to create their sketches. They may also find it helpful to do the sketches on grid paper (regular or centimetre). You may wish to use **BLM G9 Grid Paper** or **BLM G10 Centimetre Grid Paper** to support this activity.

Level 3 Sample Response

a) This is my sketch of the fountain.



b) I need to find the volume of the two pieces.
For the cylinder, $V = \pi r^2 h$
$= \pi(0.5)^2(1.2)$
$= 0.94 \text{ m}^3$
For the cone, $V = \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}(0.94)$
$= 0.31 \text{ m}^3$
The total volume of concrete I need to make the fountain is 1.25 m^3.

c) The surface area to be painted is made up of two surfaces: the slant side of the cone and the vertical side of the cylinder.
For the cone, the slant height is found using the Pythagorean theorem.
$s^2 = (1.2)^2 + (0.5)^2 \longrightarrow s^2 = 1.69 \longrightarrow s = 1.3 \text{ m}$
The surface area of the cone is $A = \pi rs$
$= \pi(0.5)(1.3)$
$= 2.04 \text{ m}^2$
The area of the side of the cylinder is a rectangle.
$A = \pi(1)(1.2)$ or 3.77 m^2.
The total surface area to be painted is 5.81 m^2.

d) The cost of the fountain is
$C =$ concrete + paint
$= (1.25)(100) + 2(17.50)$
$= \$160.00$
I needed two cans of paint because my area of 5.81 m^2 was just over the coverage of one can.

Level 3 Notes

At this level, look for the following:
- A rough sketch labelled with all necessary dimensions
- Volume and area are calculated with only minor errors
- Relevant formulas are evident
- Surface area calculations may include unnecessary areas such as the bottom of the cone and the top of the cylinder
- Some justification of reasoning for steps taken

What Distinguishes Level 2

At this level, look for the following:
- A sketch with some necessary dimensions missing
- Sketch may be two-dimensional rather then three-dimensional
- Volume and areas are partially calculated or may contain major errors
- Calculations may be completed without reference to formulas
- Surface area calculations may only involve one part of the fountain
- Partial, unclear, or incomplete justification of steps taken

What Distinguishes Level 4

At this level, look for the following:
- A precise sketch, drawn to scale, with all necessary dimensions shown
- Volume and area are calculated with no errors
- Formulas and calculations are integrated into the solutions
- Solution may explain why surface area calculation includes the chosen areas
- Complete justification for steps in the solution
- May include comments about the proportions chosen for the fountain