Chapter Review 1

Chapter 1 Review

Key Words

For #1 to #6, choose the letter that best matches the description.

1. another name for a reflection line
2. type of symmetry in which the shape can be divided into reflected halves
3. what you are measuring when you find the area of all faces of an object
4. type of symmetry in which a shape can be turned to fit onto itself
5. number of times a shape fits onto itself in one turn
6. amount of turn for a shape to rotate onto itself

A line
B rotation
C angle of rotation
D surface area
E line of symmetry
F order of symmetry

1.1 Line Symmetry, pages 6–15

7. How many lines of symmetry does each design have? Describe each possible line of symmetry using the terms *vertical*, *horizontal*, and *oblique*.

a) 

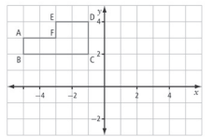
b) 

8. Half of a figure is drawn. The dashed line represents the line of symmetry. Copy and complete the figure on grid paper.

a) 

b) 

9. Determine the coordinates of the image of points A, B, C, D, E, and F after each transformation. Which of these transformations show symmetry? Describe the symmetry.
   a) a reflection in the *y*-axis
   b) a translation R6, D3



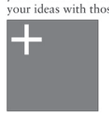
1.2 Rotation Symmetry and Transformations, pages 16–25

10. What is the order and angle of rotation symmetry for each shape? Express the angle in degrees and in fractions of a turn.

a) 

b) 

11. Write a brief description of any symmetry you can find in this square flag. Compare your ideas with those of a classmate.

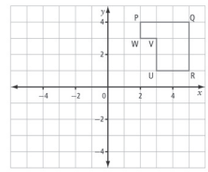


12. The arrangement of Ps has rotation symmetry, but no line symmetry.

   a) Show a way that you can arrange six Ps to make a design that has both types of symmetry.
   b) What letter(s) could you place in the original arrangement that would have both line and rotation symmetry?

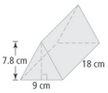
13. Examine the design carefully. Does it have rotation symmetry, line symmetry, or both? Explain.

14. Create a coordinate grid that will allow you to do the transformations. Give the coordinates for the image of points P, Q, R, U, V, and W. Are the original and each image related by symmetry? If yes, which type(s) of symmetry?
   a) rotation counterclockwise 180° about the origin
   b) reflection in the *x*-axis
   c) translation 7 units left

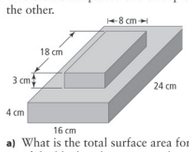


1.3 Surface Area, pages 26–35

15. The triangular prism shown has one of its triangular ends placed against a wall. By what amount does this placement decrease the exposed surface area of the prism?

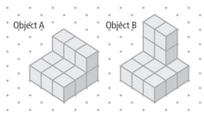


16. Two blocks are placed one on top of the other.



   a) What is the total surface area for each of the blocks when separated?
   b) What is the exposed surface area of the stacked blocks?

17. Use centimetre cubes or interlocking cubes to build the solids shown in the sketches.



   a) What is the exposed surface area of Object A?
   b) What is the exposed surface area of Object B?
   c) What is the minimum exposed surface area for a new object formed by sliding Object A against Object B? Do not lift them off the surface on which they are placed.

***MathLinks 9*, pages 36–37**

Suggested Timing
40–50 minutes

Materials
- ruler
- coloured pencils
- centimetre or interlocking cubes

Blackline Masters
Master 7 Isometric Dot Paper
Master 8 Centimetre Grid Paper
BLM 1–7 Section 1.1 Extra Practice
BLM 1–9 Section 1.2 Extra Practice
BLM 1–11 Section 1.3 Extra Practice

Planning Notes

Encourage students to work independently on the questions in the Chapter 1 Review. Students could choose to do questions mainly of the type they had difficulty with during the chapter. Provide an opportunity to discuss these questions, and have students share their strategies for answering them. Encourage students to use their Foldable, their thematic map, and examples and Key Ideas in the student resource to help them with their conceptual difficulties.

Students may benefit from using **Master 7 Isometric Dot Paper** and **Master 8 Centimetre Grid Paper** as they work through the chapter review.

Meeting Student Needs

- Encourage students to use their Foldable and to add new notes if they wish.
- Students who require more practice on a particular topic may refer to **BLM 1–7 Section 1.1 Extra Practice**, **BLM 1–9 Section 1.2 Extra Practice**, and **BLM 1–11 Section 1.3 Extra Practice**.
- Allow students to complete the Chapter Review using a combination of oral responses, diagrams, and written answers.
- Encourage students to look up examples or techniques to solve problems rather than seek answers or solutions from others. This will increase student self-reliance and encourage student responsibility for their own learning.

Gifted and Enrichment

- Some students may already be familiar with the skills handled in this review. To provide enrichment and extra challenge for gifted students, go to www.mathlinks9.ca and follow the links.

Assessment	Supporting Learning
Assessment *for* Learning	
Chapter 1 Review The Chapter 1 Review is an opportunity for students to assess themselves by completing selected questions in each section and checking their answers against the answers in the back of the student resource.	• Have students check the contents of the What I Need to Work On section of their Foldable and do at least one question related to each listed item. • Have students revisit any section that they are having difficulty with prior to working on the chapter test. • Have students review their notes from their Foldable, Math Learning Log, and thematic map. • Encourage students to make use of any tools or constructions that would assist them. For example, you may wish to provide students with centimetre cubes or interlocking cubes to help them complete #17.