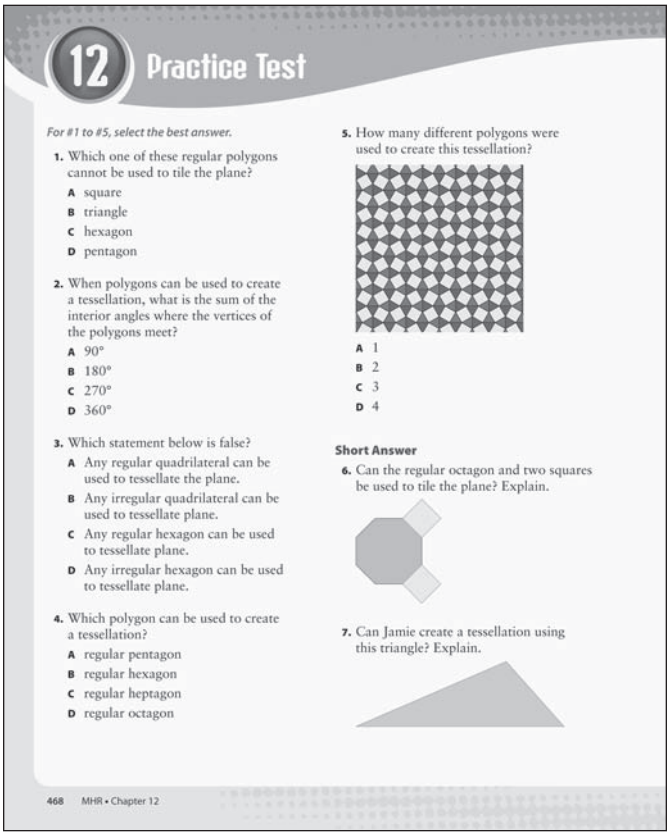
12 Practice Test



12 Practice Test

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

1. Which one of these regular polygons cannot be used to tile the plane?
   - A square
   - B triangle
   - C hexagon
   - D pentagon

2. When polygons can be used to create a tessellation, what is the sum of the interior angles where the vertices of the polygons meet?
   - A 90°
   - B 180°
   - C 270°
   - D 360°

3. Which statement below is false?
   - A Any regular quadrilateral can be used to tessellate the plane.
   - B Any irregular quadrilateral can be used to tessellate plane.
   - C Any regular hexagon can be used to tessellate plane.
   - D Any irregular hexagon can be used to tessellate plane.

4. Which polygon can be used to create a tessellation?
   - A regular pentagon
   - B regular hexagon
   - C regular heptagon
   - D regular octagon

5. How many different polygons were used to create this tessellation?

   - A 1
   - B 2
   - C 3
   - D 4

Short Answer

6. Can the regular octagon and two squares be used to tile the plane? Explain.

7. Can Jamie create a tessellation using this triangle? Explain.

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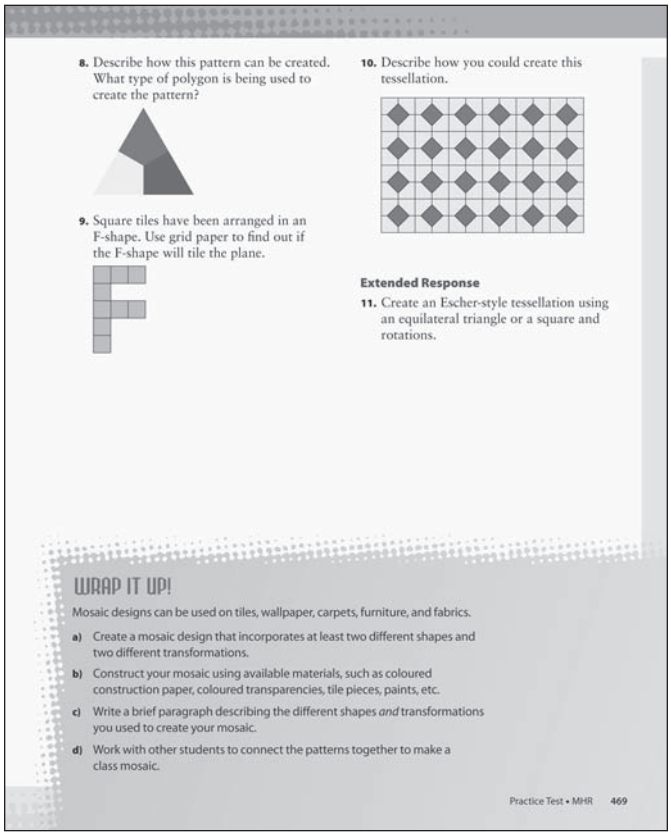

8. Describe how this pattern can be created. What type of polygon is being used to create the pattern?

9. Square tiles have been arranged in an F-shape. Use grid paper to find out if the F-shape will tile the plane.

10. Describe how you could create this tessellation.

Extended Response

11. Create an Escher-style tessellation using an equilateral triangle or a square and rotations.

WRAP IT UP!

Mosaic designs can be used on tiles, wallpaper, carpets, furniture, and fabrics.

a) Create a mosaic design that incorporates at least two different shapes and two different transformations.

b) Construct your mosaic using available materials, such as coloured construction paper, coloured transparencies, tile pieces, paints, etc.

c) Write a brief paragraph describing the different shapes *and* transformations you used to create your mosaic.

d) Work with other students to connect the patterns together to make a class mosaic.

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***MathLinks 8*, pages 468–469**

Suggested Timing
40–50 minutes

Materials
- pattern tiles (optional)
- protractor
- ruler

Blackline Masters
Master 9 0.5 Centimetre Grid Paper
BLM 12–18 Chapter 12 Test

Planning Notes

Allow time for students to clarify any misunderstandings before beginning the practice test. 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, #7–#9.

Study Guide

Question(s)	Section(s)	Refer to	The student can …
1, 3, 4, 7	12.1	Explore the Math Example Key Ideas	✓ identify regular and irregular polygons that can be used to create tessellations ✓ describe why certain regular and irregular polygons can be used to tessellate the plane
2	12.1 12.2	Example Key Ideas Key Ideas	✓ describe why certain regular and irregular polygons can be used to tessellate the plane
5, 8	12.2	Key Ideas	✓ identify regular and irregular polygons that can be used to create tessellations
6, 9	12.2	Example	✓ identify regular and irregular polygons that can be used to create tessellations ✓ describe why certain regular and irregular polygons can be used to tessellate the plane
10	12.3	Example	✓ identify how translations and reflections can be used to create a tessellation ✓ identify how rotations can be used to create a tessellation
11	12.4	Example	✓ create tessellations from combinations of regular and irregular polygons

Answers

Chapter 12 Practice Test

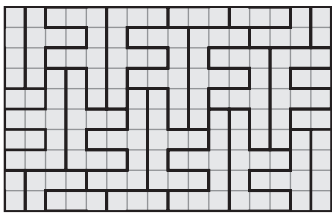
1. D **2.** D **3.** D **4.** B **5.** B

6. Yes. Answers may vary. Example: The sum of the angles at a vertex where the polygons meet is 360°.

7. Yes. Answers may vary. Example: Any triangle can create a tessellation. Two congruent triangles form a parallelogram that tiles the plane.

8. Answers may vary. Example: Rotate the kite about the vertex where the two shorter sides meet.

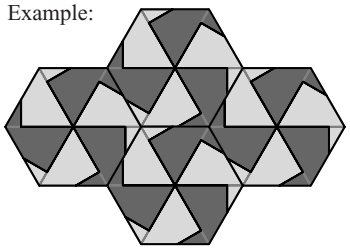
9. The F-shape will tile the plane. Answers may vary. Example:



10. Answers may vary. Example: Rotate the top left pentagon about the centre of the red square for a full turn to form a combined shape of four pentagons with the square at the centre. Translate this combined shape to create the tessellation.

11. Answers may vary. Look for the following:
- The triangle or square should be modified to create an Escher-style tessellation.
- The tessellation should be formed using rotations.

Example:



Assessment	Supporting Learning
Assessment *as* Learning	
Chapter 12 Self-Assessment Have students review their earlier responses in the What I Need to Work On sections 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 12 Test After students complete the practice test, you may wish to use **BLM 12–18 Chapter 12 Test** as a summative assessment.	• Some of the outcomes are addressed by more than one question on the test. You may wish to have students complete #6 *or* #7, #8 *or* #9, and #10 *or* #11. • Consider allowing students to use their chapter Foldable. • Consider using the Math Games on page 470 or the Challenge in Real Life on page 471 to assess the knowledge and skills of students who have difficulty with tests.