

LESSON ORGANIZER

40–50 min

Student Materials

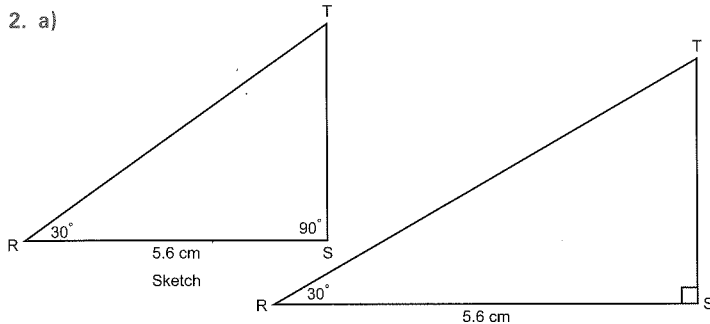
- protractors
- square dot paper (PM 25)
- tracing paper

Assessment: Master 6.1 Unit Rubric: Geometry and Measurement

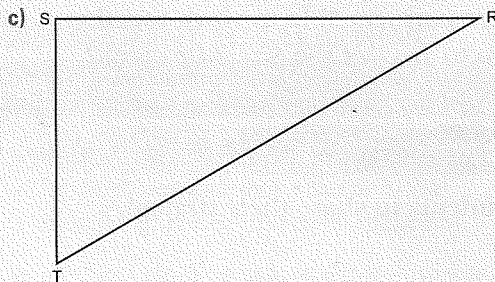
Master 6.4 Unit Summary: Geometry and Measurement

Sample Solutions

1. a) Triangle A is scalene because it has no equal sides.
Triangle B is isosceles because it has 2 equal sides.
Triangle C is equilateral because it has 3 equal sides.
- b) Triangle A is a right triangle because it has a 90° angle.
Triangle B is a right triangle because it has a 90° angle.
Triangle C is an acute triangle because all angles are less than 90° .



- b) I drew a right triangle. It is also a scalene triangle because it has no equal sides.



I know the two triangles are congruent because when I put the tracing on top of the original triangle, they match exactly.

3. a)

Polygons	Non-Polygons
B, D, F, G, H, J	A, C, E

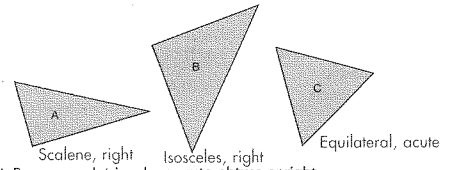
Shapes B, D, F, G, H, and J are polygons because they are all closed shapes with sides that are straight line segments.

Shapes A and C are non-polygons because they are not closed shapes. Shape E is a non-polygon because it does not have straight sides.

Unit 6 Show What You Know

LESSON

1. a) Name each triangle as scalene, isosceles, or equilateral. Explain how you decided on each name.



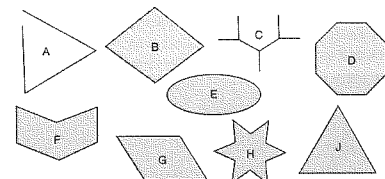
- b) Rename each triangle as acute, obtuse, or right. Tell how you know.

2. a) Use a ruler and a protractor. Construct triangle RST: side RS is 5.6 cm, $\angle R$ is 30° , and $\angle S$ is 90° . Sketch the triangle first.

- b) What kind of triangle did you draw? Right triangle. How else can you name the triangle? Scalene triangle.

- c) Trace $\triangle RST$. Use the tracing to draw the triangle in a different orientation. Explain how you know the two triangles are congruent.

3. a) Sort these shapes into sets of polygons and non-polygons. Explain how you decided where to place each shape.



- b) Sort the polygons in part a into sets of regular and irregular polygons. Explain how you did this.

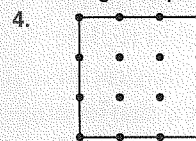
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Unit 6

- b)
- | Regular Polygons | Irregular Polygons |
|------------------|--------------------|
| D, J | B, F, G, H |

Shapes D and J have all sides equal and all angles equal.

Shapes B, F, G, and H do not have all sides and all angles equal.

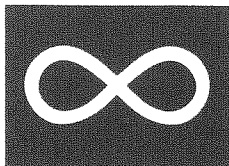
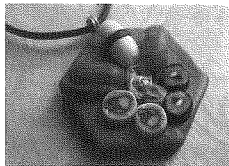


- a) I drew a square.

- b) Student should trace the square and place the tracing on top of the other square to demonstrate congruence.

Measuring: All sides have the same length and all angles measure 90° . So, all sides are congruent and all angles are congruent.

4. Draw a regular quadrilateral on square dot paper.
- What shape did you draw?
 - Use measuring and superimposing to show that all angles are congruent and all sides are congruent. Show your work.
5. a) This sushi-platter pendant has the shape of a regular hexagon. The pendant has side length 1.9 cm. Calculate the perimeter of the pendant. Which strategy did you use? 11.4 cm
- b) Write a formula to find the perimeter of any regular hexagon. Explain why the formula works.
6. The flag of the Métis Nation in Saskatchewan is rectangular. Suppose it has length 3 m and width 1.5 m. What is the area of the flag? 4.5 m^2 How did you find out?
7. The top of Toby's desk has length 68 cm and width 50 cm.
- What is the area of the top of Toby's desk?
 - Toby is working on a poster. 3400 cm^2 The area of the poster is 2500 cm^2 . Find 3 pairs of possible dimensions for the poster. How did you do this? Which dimensions are most likely?
 - Can you tell if the poster fits on Toby's desk? Explain.
8. Estimate, then calculate, the volume of a rectangular prism with each set of dimensions.
- length 21 cm, width 19 cm, height 8 cm 3192 cm^3
 - length 5 m, width 1.2 m, height 2 m 12 m^3



UNIT 6 Learning Goals

- construct and compare triangles
- describe and compare regular and irregular polygons
- develop formulas for the perimeters of polygons, the area of a rectangle, and the volume of a rectangular prism

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5. a) Since the pendant is a regular hexagon, I multiplied the length of one side by 6: $1.9 \times 6 = 11.4$
- b) Let P represent the perimeter and s represent the length of one side. Then, $P = s \times 6$
- The formula works because every regular hexagon has 6 equal sides, so the perimeter is 6 times the side length.
6. I substituted into the formula $A = \ell \times w$.
7. b) Three possible pairs of dimensions are:
- 100 cm by 25 cm
 - 50 cm by 50 cm
 - 125 cm by 20 cm
- I found pairs of numbers that multiplied to 2500. I think 50 cm by 50 cm is the most likely size.
- c) Yes, the 50-cm by 50-cm poster fits on Toby's desk because the poster is as wide as the desk and it is not as long as the desk.
8. Estimates will vary.
- Estimate: $20 \text{ cm} \times 20 \text{ cm} \times 8 \text{ cm} = 3200 \text{ cm}^3$
 - Estimate: $5 \text{ m} \times 1 \text{ m} \times 2 \text{ m} = 10 \text{ m}^3$

ASSESSMENT FOR LEARNING

What to Look For

Conceptual Understanding

- ✓ **Questions 1 and 2:** Students can name triangles according to the number of equal sides and the types of interior angles.
- ✓ **Question 5:** Students can develop a formula for the perimeter of a regular hexagon.

Procedural Knowledge

- ✓ **Question 2:** Students can construct a specified triangle and name it in two different ways.
- ✓ **Questions 2 and 4:** Students can demonstrate congruence by superimposing and by measuring.
- ✓ **Question 3:** Students can sort shapes into polygons and non-polygons. Students can sort polygons into regular and irregular polygons.
- ✓ **Question 5:** Students can calculate the perimeter of a regular polygon.
- ✓ **Questions 6 and 7:** Students can calculate the area of a rectangle.
- ✓ **Question 8:** Students can calculate the volume of a rectangular prism.

Problem-Solving Skills

- ✓ **Question 7:** Students can solve a problem involving the area of a rectangle.