Name: _____ Date: _____

BLM 12–1

Chapter 12 Math Link Introduction

This worksheet will help you with the Math Link on page 445.

Mosaics are pictures or designs made of small shapes of different colours. Mosaics are often made from tessellating a shape. Mosaics can be used to decorate shelves, table tops, mirrors, floors, walls, and other objects.

1. What is a regular polygon?

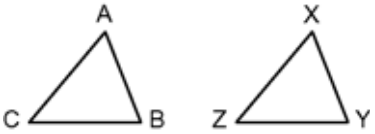
Hint: Check the Glossary of your student resource.

_____

2. What is an irregular polygon?

_____

3. If the tiles are congruent, they can be used to make a mosaic.



a) Measure the sides of each triangle. Record the measurements to the nearest millimetre.

side AC = _____ side AB = _____ side CB = _____

side ZX = _____ side XY = _____ side ZY = _____

Is there a relationship between triangle ABC and triangle XYZ? _____

If so, what is it?

_____

b) Measure the angles of each triangle. Record the measurements to the nearest whole degree.

angle A = _____ angle B = _____ angle C = _____

angle X = _____ angle Y = _____ angle Z = _____

Is there a relationship between the angles of triangle ABC and triangle XYZ? _____

If so, what is it?

_____

c) What does *congruent* mean?

_____

d) Is ΔABC congruent to ΔXYZ? _____

Explain your reasoning.

_____

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(continued)

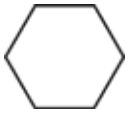
4. a) Copy the shape of either ΔABC or ΔXYZ onto a piece of cardboard or construction paper.

b) Cut out the triangle to use as a pattern.

c) Create a design on a blank sheet of paper by tracing the triangle template in several places to make a pattern. Make sure that the sheet of paper is covered with no spaces between the triangles.

d) Colour your design.

5. Regular polygons can also be used to create interesting mosaic patterns.



a) Measure each side of the hexagon to the nearest millimetre. How are the measurements of each side related?

_____

b) Measure each angle of the hexagon to the nearest degree. How are the measurements of each angle related?

_____

c) Is this a regular hexagon? _____

How do you know?

_____

d) Copy the hexagon onto a piece of cardboard or construction paper.

e) Cut out the hexagon to use as a pattern.

f) Create a new design using the same process you used for the triangle in #4.

6. Check off the transformations that you used to create your pattern in #5f).

- ☐ translation
- ☐ rotation
- ☐ reflection
- ☐ a combination of transformations (list them)

_____

7. List the steps that you followed to create the pattern in #5f). Include the names of the transformations that you used.