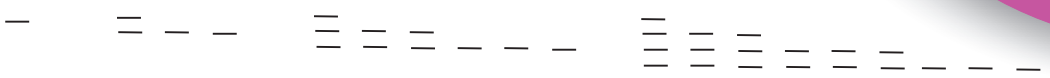
NAME_____

Module 11 **Transformation of Shapes**
Lesson 5 **Tessellations**

Independent Practice 11.5

1. How many segments are in the sixth term of the sequence?



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2. What is the 51st term of the sequence?

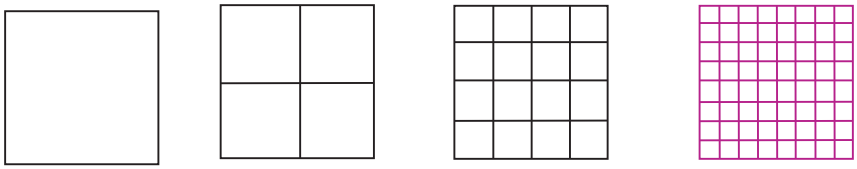
△

3. What letter is in the 212th position of the repeating pattern?

GEOMETRYGEOMETRYGEOMETRY...

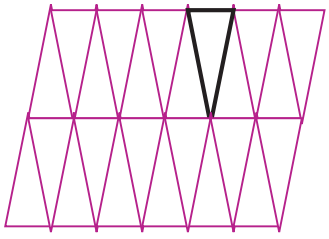
M

4. The first three terms of a self-similar pattern are shown. Draw the next term.

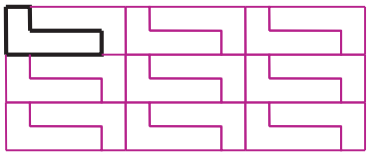


Use the figure to create a tessellation.

5.

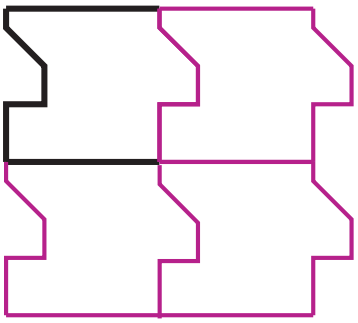


6.

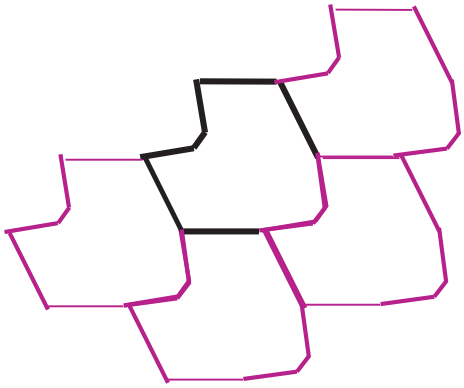


A square or hexagon is being modified into a tessellating shape. Draw the missing side. Then, copy and translate to create a tessellation.

7.

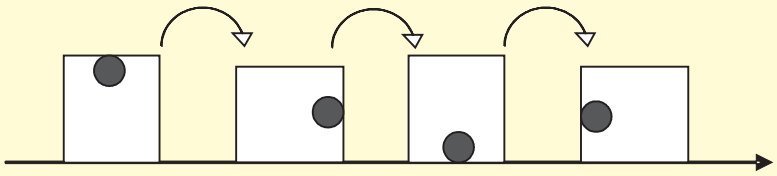


8.



Journal

1. The diagram shows the first four stages of a figure being rolled along a flat surface. Explain how you can determine which figure will be in the 101st stage.



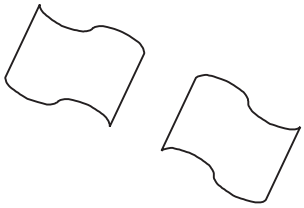
2. What is the difference between a regular tessellation and a semi-regular tessellation?

3. Describe three ways to create a tessellation. Provide an example with each description.

Cumulative Review

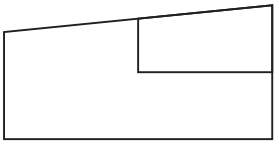
Tell if the transformation is a translation, rotation, reflection, dilation, or neither.

1.



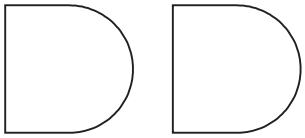
Reflection

2.



Dilation

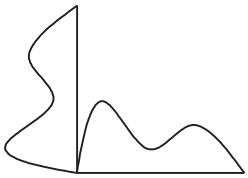
3.



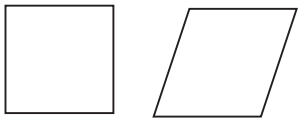
Translation

NAME_____

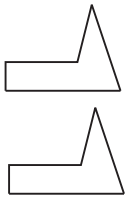
Module 11 Transformation of Shapes
Lesson 5 Tessellations

4. 

Rotation

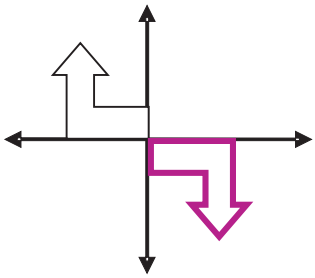
5. 

Neither

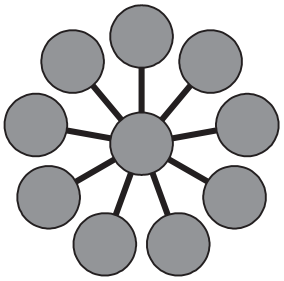
6. 

Translation

7. Rotate the figure 180° about the origin.



8. Find the order of rotation for the figure at right. List the angles of rotation. Does the figure have point symmetry?



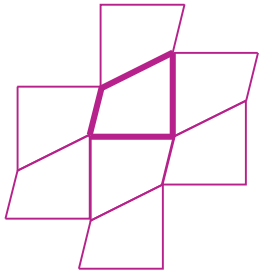
Order 9
Angles: 40°, 80°, 120°, 160°, 200°, 240°, 280°, 320°
No point symmetry

Possible Journal Answers

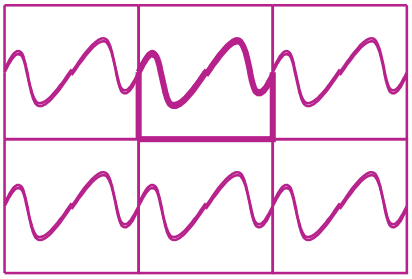
1. **The fifth term is the same as the first term; the sixth term is the same as the second term; the seventh term is the same as the third term; and the eighth term is the same as the fourth term. Every term that is a multiple of four is the same as the fourth term. Since 100 is a multiple of four, the 100th term will be the same as the fourth term, and the 101st term will be the same as the next turn in the pattern, which is the first term.**

2. **In a regular tessellation, only one shape is used and that shape is a regular polygon. In a semi-regular tessellation, more than one shape is used. Those shapes are also regular polygons.**

3. **One way to create a tessellation is to take a figure that always tessellates, such as a triangle or quadrilateral, locate the midpoint of one side, and rotate the figure 180° about that point. Then, copy and translate to make the tessellation.**



Another way to create a tessellation is to take a figure that tessellates, to locate the midpoint of one side, and to draw a new edge from the midpoint to the endpoint in any way. Then, rotate this new edge 180° to connect the midpoint of that side to the other endpoint. Copy, rotate, and translate to make the tessellation.



The third way to create a translation is to take a figure that tessellates, to redraw one side any way, and then to copy and to translate this side to replace the opposite side. Copy and translate to make the tessellation.