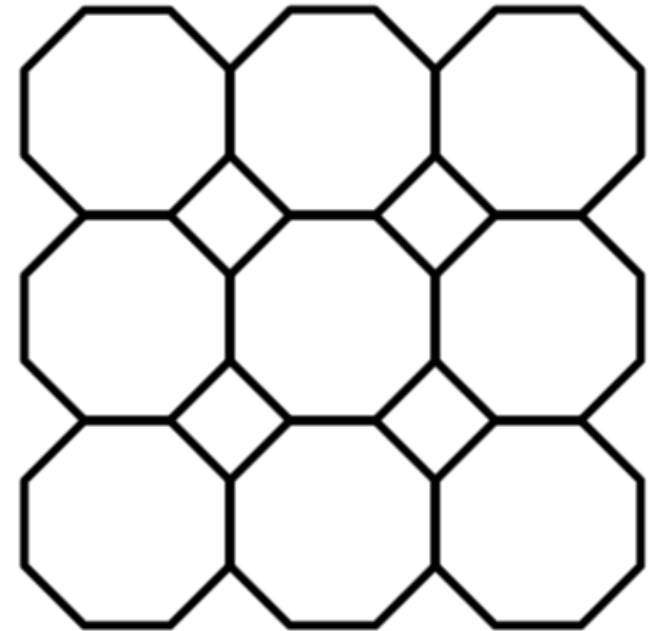
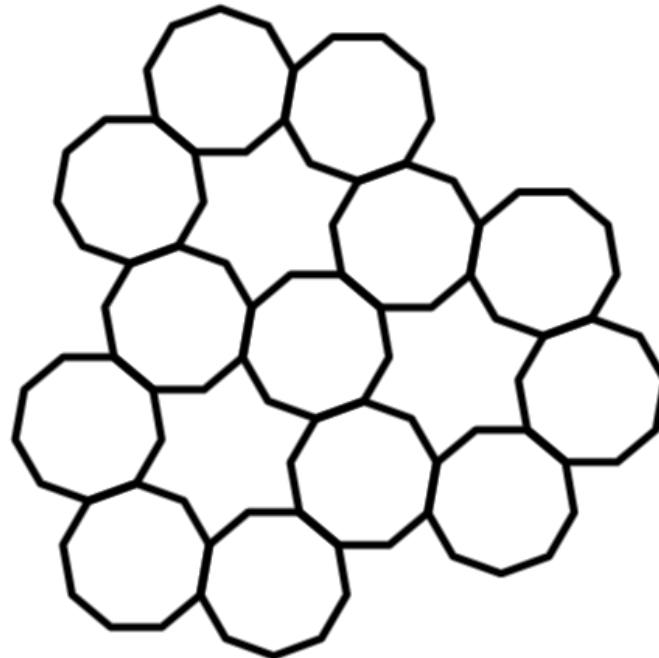
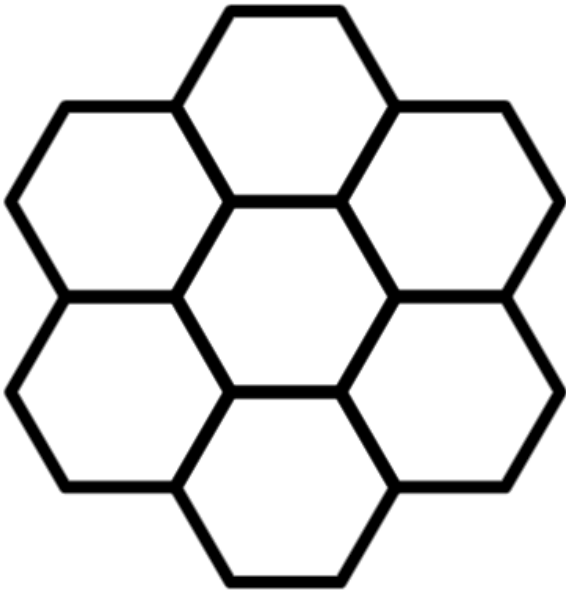


**TAKS Objective 6**  
**TEK G.5C**  
**Tutorial**  
**(Grade 11)**

...use properties of transformations and their compositions to make connections between mathematics and the real world, such as tessellations.

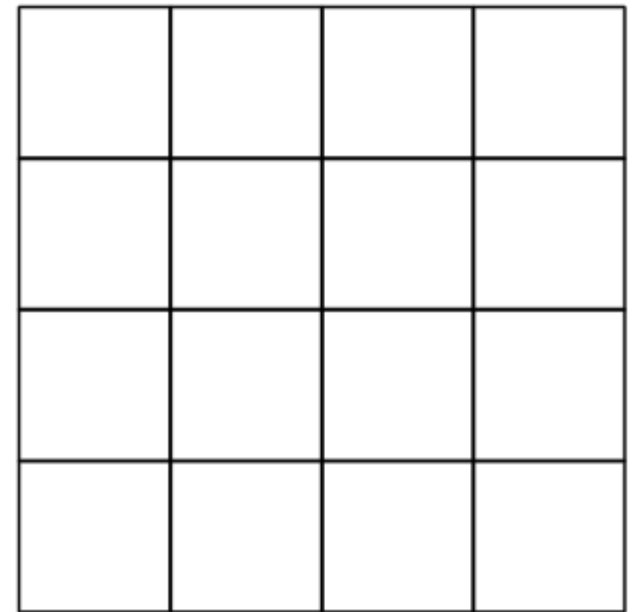
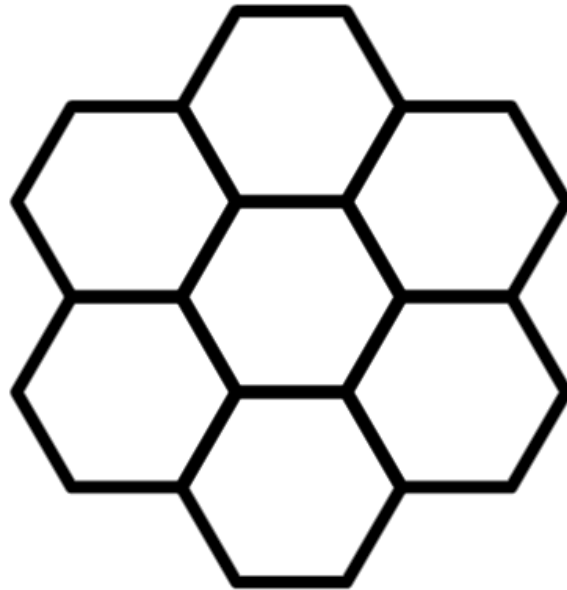
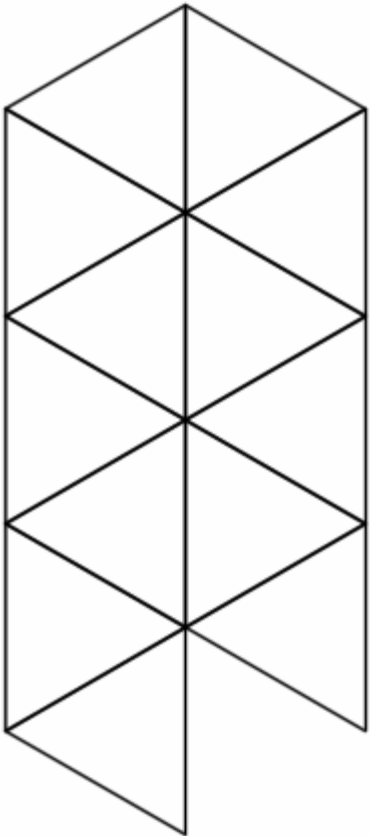
# What is a tessellation?

Tessellations are tilings with no gaps or overlaps.



Which three regular polygons will tessellate?

triangles, quadrilaterals, & hexagons



A tessellation completely covers the area around a point. In other words, it covers 360 degrees around the point.

Why do regular triangles tessellate?

A regular triangle is equilateral and equiangular. Therefore, the angle measures are 60 degrees. 60 goes into 360 evenly; therefore, it tessellates.

Why do regular quadrilaterals tessellate?

A regular quadrilateral is a square.

Therefore, the angle measures are 90 degrees. 90 goes into 360 evenly; therefore, it tessellates.

# Why do regular hexagons tessellate?

A regular hexagon has angle measurements of 120 degrees.

(Use  $(n-2)180/n$ .)

120 goes into 360 evenly;  
therefore, it tessellates.

Transformations include translations, reflections, rotations, and dilations.

Translations, reflections, and rotations produce congruent figures and are called isometries.

Dilations produce similar figures, which may or may not be congruent.