

Geometry 9.4

Quiz 9.1-9.2

Recognize and describe tessellations

Tessellation *tiling*

regular tessellation *all regular*

semi-regular tessellation *all regular*

uniform *2+ shapes*

not uniform

Polygon tiles

Quiz 9.1-9.2

Tesellation:

Makes a pattern using one or more shapes

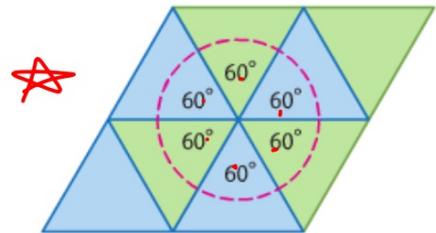
It should be repeating

There should be no gaps in the pattern

Tiles may not overlap

A **tessellation** is a pattern of one or more figures that covers a plane so that there are no overlapping or empty spaces. The sum of the angles around the vertex of a tessellation is  $360^\circ$ .

A **regular tessellation** is formed by only one type of regular polygon. A regular polygon will tessellate if it has an interior angle measure that is a factor of 360. A **semi-regular tessellation** is formed by two or more regular polygons.

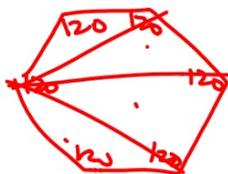


$$\frac{360}{60} = 6$$

## Activity 1 Regular Tessellation

Determine whether each regular polygon will tessellate in the plane. Explain.

a. hexagon



$$\frac{360}{120} =$$

yes

b. decagon

$$\frac{1440}{10}$$

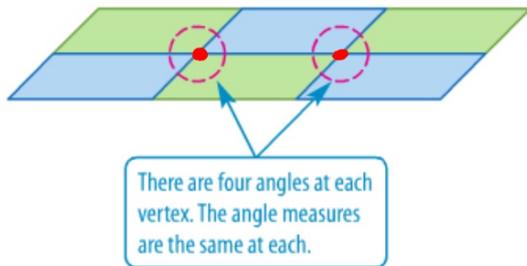


$$\frac{360}{144} \text{ NO}$$

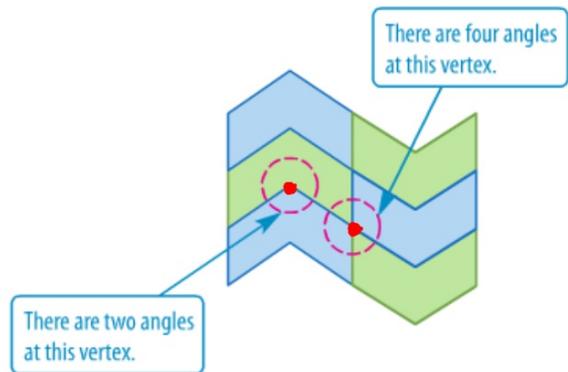
factor of  
360

A tessellation is **uniform** if it contains the same arrangement of shapes and angles at each vertex.

**Uniform**



**Not Uniform**



Regular: all parts are **the same** regular polygon

Semi-regular: all parts are regular polygons but **not all the same polygon**

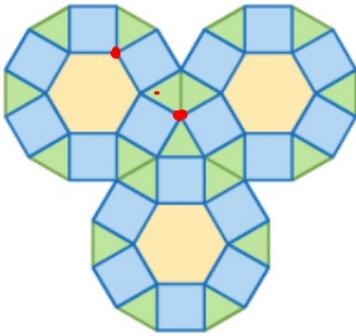
## Activity 2 Classify Tessellations

Determine whether each pattern is a tessellation. If so, describe it as *regular*, *semi-regular*, or *neither* and *uniform* or *not uniform*.

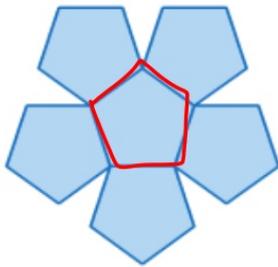
SemiReg

not un.

a.

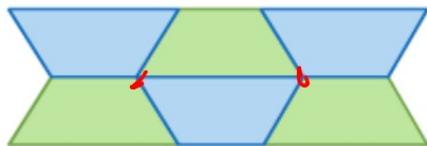


b.



no

c.

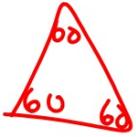


neither  
uniform

## Exercises

Determine whether each regular polygon will tessellate in the plane. Write *yes* or *no*. Explain.

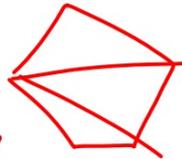
1. triangle



$$\frac{360}{60} = 6$$

yes

2. pentagon



$$\frac{540}{5} = 108$$

$$\frac{360}{108}$$

no

3. 16-gon

$$14 \cdot 180 = 2520$$
$$2520 \div 16 = 157.5$$

$$\frac{360}{157.5}$$

no

Does it have angles that are factors of 360?

WB 9.4  
sk. + pr.