TESSELLATIONS & TRANSFORMATIONS

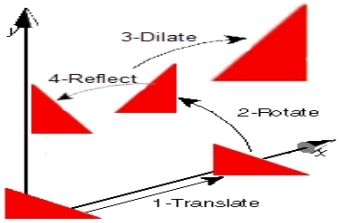
PRAXIS FLASHCARD #349

TESSELLATION

A **tessellation** is a two-dimensional plane created by one or more polygon shapes fitted into each other so no "open space" remains. Kepler first discussed tessellations in the early 1600's. Equilateral triangles, squares, and hexagons are the only regular polygons that tessellate. There exists an entire branch of geometry about tessellations, begun by Russian scientist Fyodorov in the late 1800's. Tessellations for 3+ dimensional spaces are also defined.

PRAXIS FLASHCARD #103 & #348

PLANE TRANSFORMATIONS



A **transformation** in geometry changes the position of a shape on the coordinate plane. There are four forms of transformation:

1. **Translation** (move)
2. **Rotation** (turn)
3. **Dilation** (scale) (enlarge/reduce)
4. **Reflection** (flip)

PRAXIS FLASHCARD #110

SYMMETRY

Symmetry (also known as reflection symmetry) is when both halves of an object are exact copies of each other. The line down the middle between the two halves is the **line of symmetry**.

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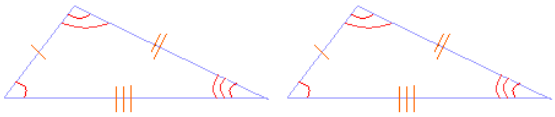
CONGRUENT SHAPES

Congruent shapes are two shapes of exactly the same size and shape. The two shapes may be rotated or flipped. The common way to mark the matching sides and angles of congruent shapes is with hash marks as shown below:



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SIMILAR SHAPES

Similar Shapes are shapes that have the same angles but the size of the sides is different; they are the same shape but not the same size. The similar shape may be flipped or rotated, but it is still similar if the two shapes are merely dilations of each other.