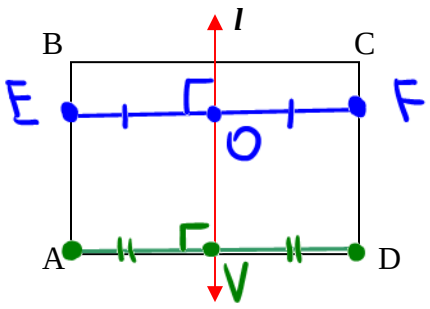
Math 1312
Section 2.6
Symmetry and Transformations

Definition:

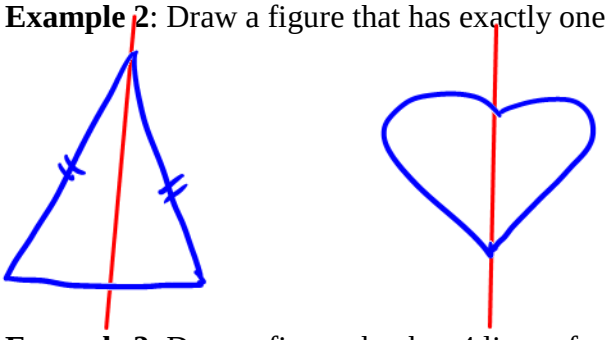
A figure has **symmetry with respect to a line *l*** if for every point A on the figure, there is a second point B on the figure for which l is the perpendicular bisector of $\overline{AB}$.

Example 1:

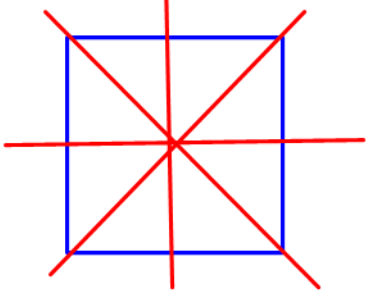


1. $EF \perp \ell$
2. $EO = OF$

Example 2: Draw a figure that has exactly one line of symmetry.



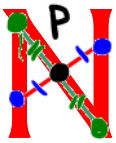
Example 3: Draw a figure that has 4 lines of symmetry.



Definition:

A figure has **symmetry with respect to point P** if for every point A on the figure, there is a second point C for which P is the midpoint of $\overline{AC}$

Example 4:



Definition:

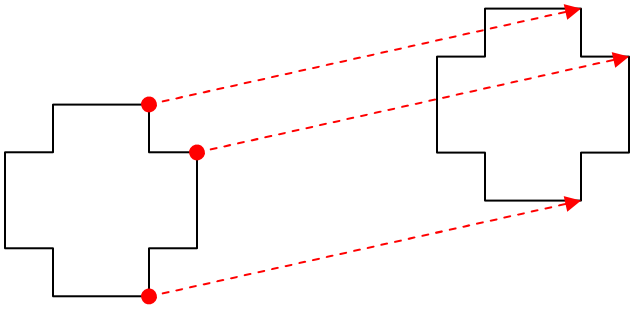
Two figures are **congruent** if one can be moved so that it exactly overlaps the other.

Transformation involves moving an object from its original position to a new position.

Types of transformations

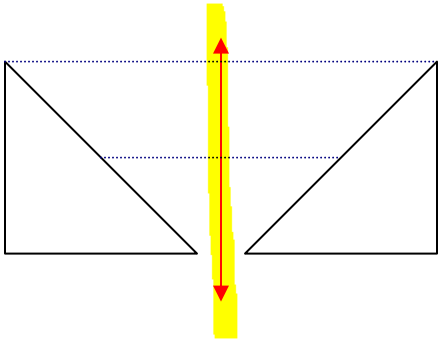
1. **Translation** involves "sliding" the object from one position to another.

Example 5:



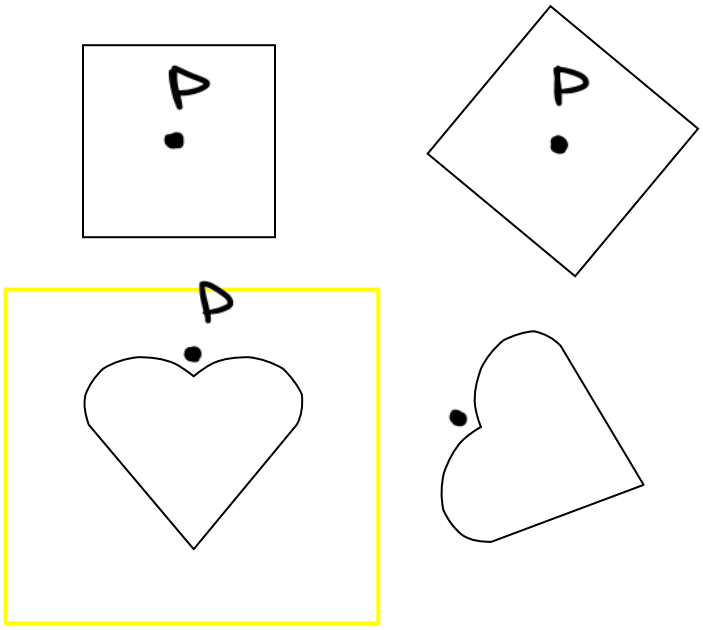
2. **Reflection** involves "flipping" the object over a line called the line of reflection.

Example 6:



3. **Rotation** involves “turning” the object about a point called the center of rotation.

Example 7:



Popper 04

5 As