Coordinate Algebra
G.CO.3: Mapping a figure onto itself

Name: _____

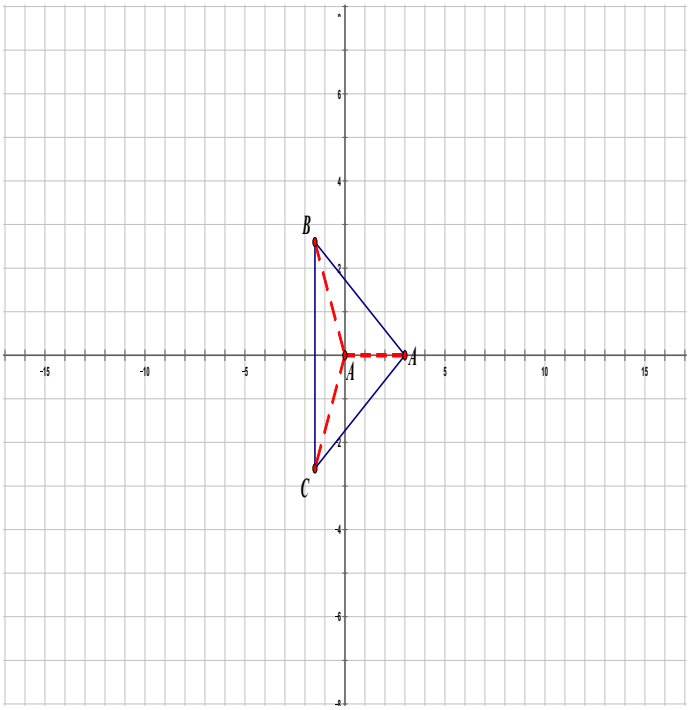
Discussion:

1). What's special about this figure?

2). What is the measure of each interior angle?

3). What is the sum of these angles?

4). What line would reflect the figure onto itself?



5). What rotations will transform the triangle onto itself?

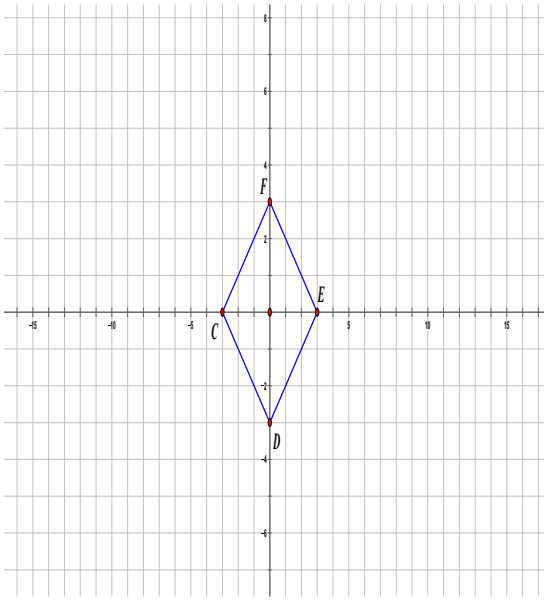
A _____ line is the line that reflects the image onto itself.

A rotation of _____ will carry any figure onto itself. Other figures have other rotations that will do this. These figures must be _____. Thus for these figures have,

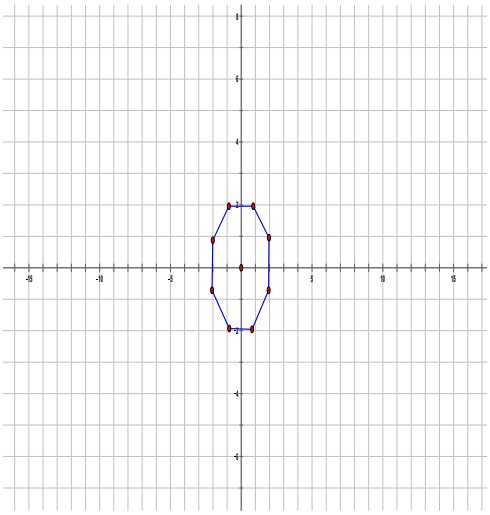
Minimum rotation that carries a figure onto itself $=$

Note that any _____ of this angle will rotate the figure onto itself also!

Ex 1). For a square centered at the origin as pictured below.
a) Draw every reflection line that maps the figure onto itself
b) Give two rotations (other than the trivial one) that would transform the figure onto itself.



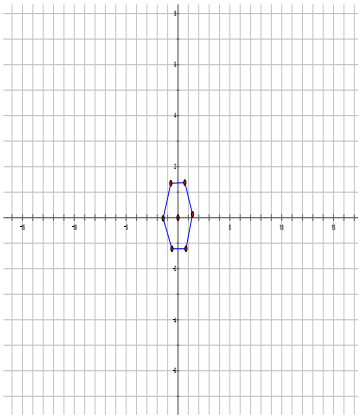
Ex 2). Consider the regular figure below centered at the origin.
a) Draw every reflection line that maps the figure onto itself
b) Give two rotations (other than the trivial one) that would transform the figure onto itself.

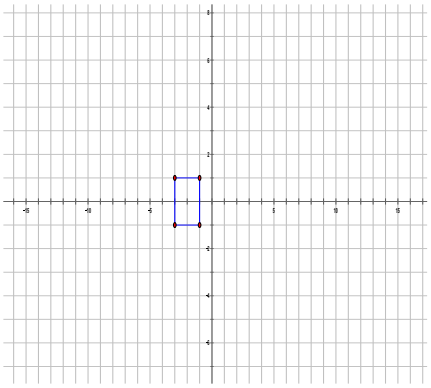


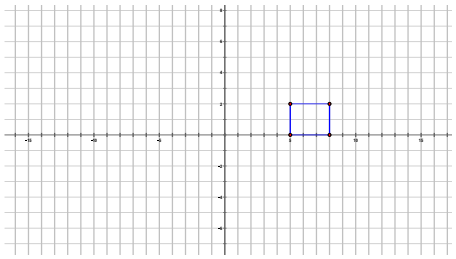
Coordinate Algebra
Assignment – Transformations onto Itself

_____
_____

For each picture identify two transformations (reflections or rotations) that would transform the figure onto itself. Do not use 360 degrees!

1. 

2. 

3. 

4. A regular nonagon (9 sides) is centered at the origin. Give 2 rotations that would transform the figure onto itself.

5. A regular heptagon (7 sides) is centered at the origin. Give 2 rotations that would transform the figure onto itself.

6. Specify a list of transformations that would put the figure below in the shaded region.