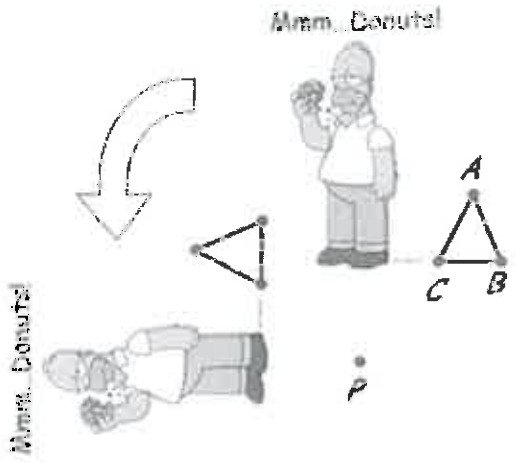
Geometry R – Mrs. Cowen
Unit 2B – Day 3 Notes

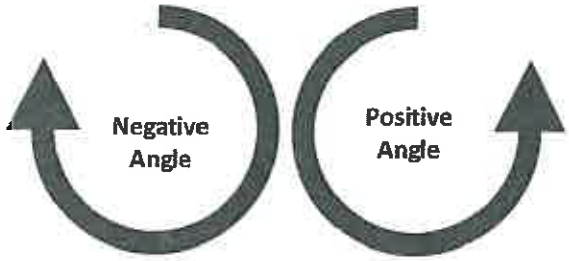
Name_____
Date_____

Rotations & Rotational Symmetry

Rotation – moving a 2D figure such that each point is rotated around a central point through a given angle.

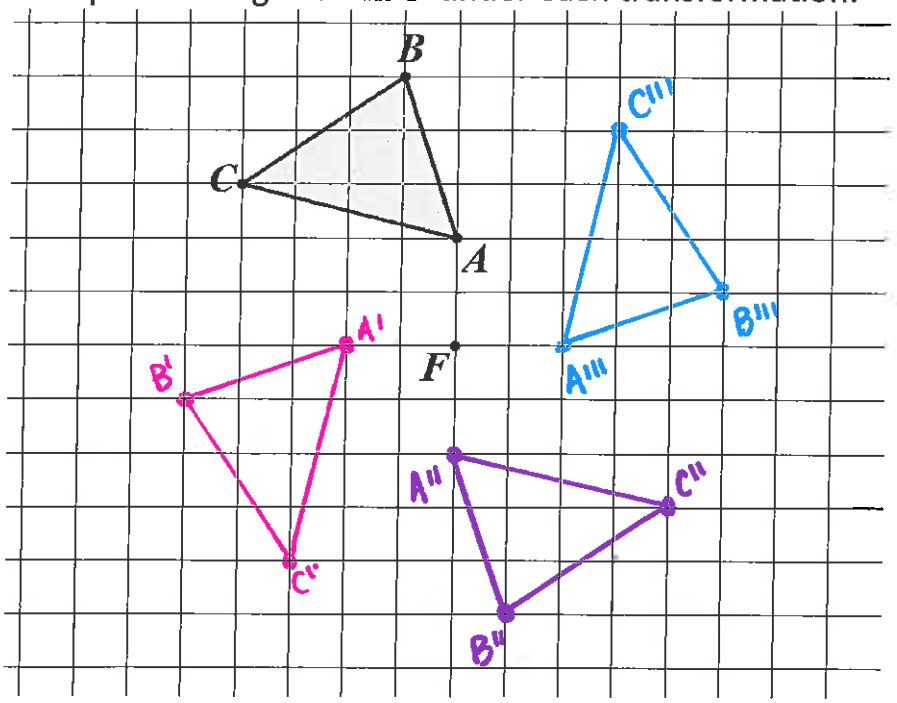


Direction of Rotation



Counter clock-wise for positive angles of rotation.

1a. Graph the image of ΔABC under each transformation:



$R_{F,90^o}$

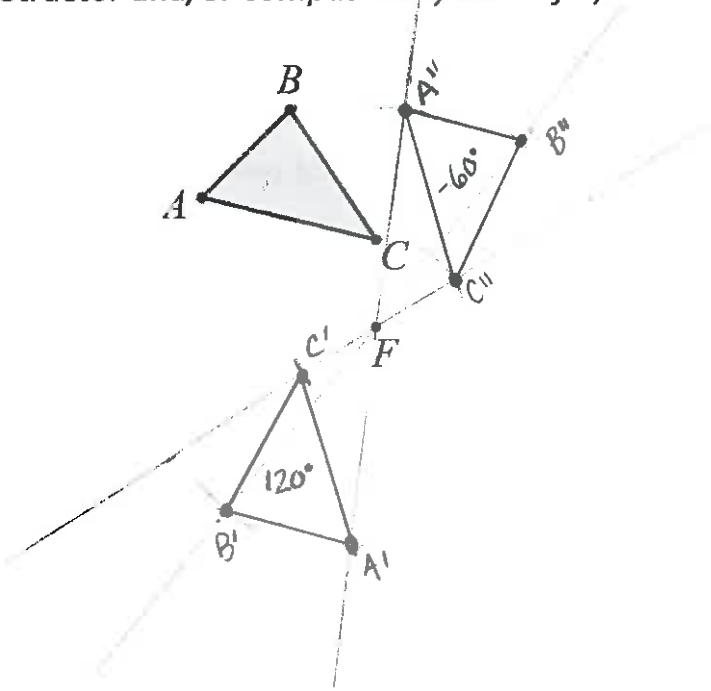
$R_{F,180^o}$

$R_{F,270^o}$

1b. Is rotation a Rigid Motion? Justify your response by providing evidence to support your claim. yes, rotation is a rigid motion. The length of the segments remains the same, as does angle measure.

SKIP?

2a. Graph the image of ΔABC under each transformation:
(a protractor and/or compass may be useful)



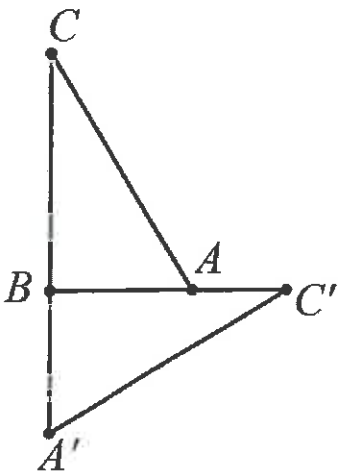
$R_{F,120^o}$

$R_{F,-60^o}$

2b. Is orientation preserved under rotation? Explain your reasoning.

yes, orientation is preserved under rotation. If you name the Δ in a counterclockwise direction the letters are the same.

3.

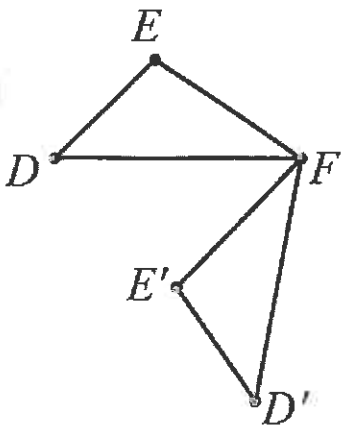


a. Precisely describe the rotation that would map ΔABC onto $\Delta A'BC'$.

A rotation of ΔABC 90° about point B would map A onto A' and C onto C'

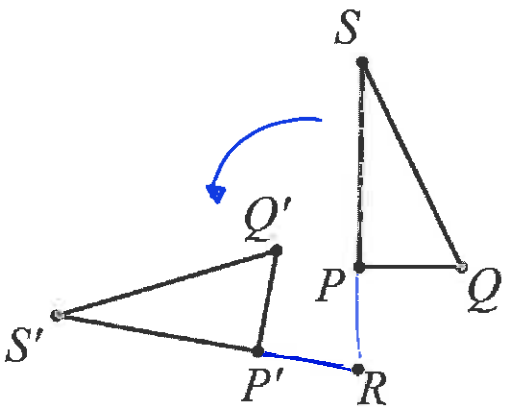
OR

Rotate ΔABC clockwise an angle equal to m∠CBA around center B.



b. Precisely describe the *rigid motion* that would map ΔDEF onto $\Delta D'E'F$.

A rotation of ΔDEF counterclockwise around point F a measure of $\angle EFE'$



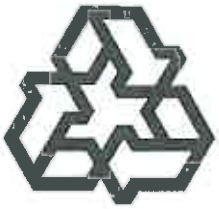
c. Precisely describe the *rigid motion* that would map ΔPSQ onto $\Delta P'S'Q'$.

A rotation of ΔSQP counterclockwise around R by $m\angle PRP'$

Point Symmetry: Having a center of rotation such that a shape can be rotated 180° onto itself.
Which of the following words has point symmetry? turn paper upside down

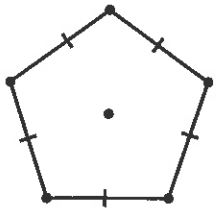
MOM	**MOW**	*chump*	*Symmetry*
NO	yes	yes	yes

Rotational Symmetry: Having a center of rotation such that a shape can be rotated onto itself.
Which of the following pictures has rotational symmetry? For those that do, what is the angle of rotation?



$\frac{360}{3} = 120$

rotational symmetry of 120



$\frac{360}{5} = 72°$

NO rotational symmetry