

Name: _____

Date: _____

UNIT 2

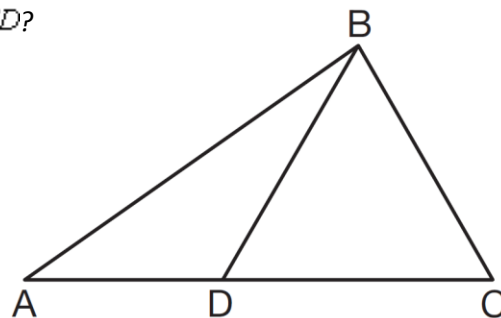
LESSON 7

AIM: HOW DO WE CONSTRUCT ROTATIONS OFF THE COORDINATE PLANE?

Do Now: In the diagram of $\triangle ABC$ below, \overline{BD} is drawn to side \overline{AC} .

If $m\angle A = 35$, $m\angle ABD = 25$, and $m\angle C = 60$, which type of triangle is $\triangle BCD$?

- 1) equilateral
- 2) scalene
- 3) obtuse
- 4) right



CONSTRUCTING ROTATIONS WITH ANGLES THAT ARE MULTIPLES OF 60

EXAMPLE #1: Using your compass and straightedge, construct a *hexagon* about point P with a radius of \overline{PB} .

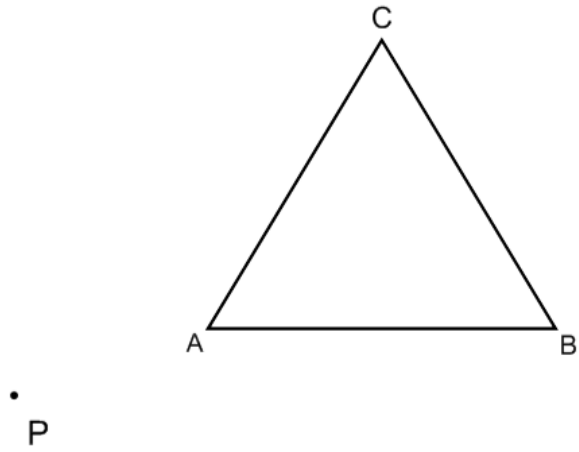
B •

•
P

Using your construction above, rotate point B 120 degrees *counter-clockwise* about point P , label it B' .

CONCLUSION: _____

EXAMPLE #2: Using your compass and straightedge, rotate $\triangle ABC$ about point P 60° counter clockwise.

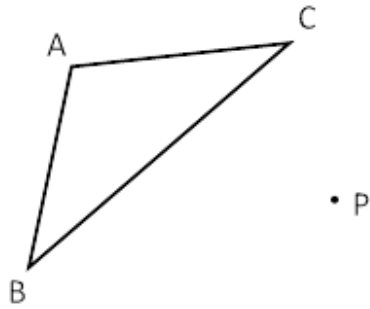


Is $\triangle ABC \cong \triangle A'B'C'$? Explain _____

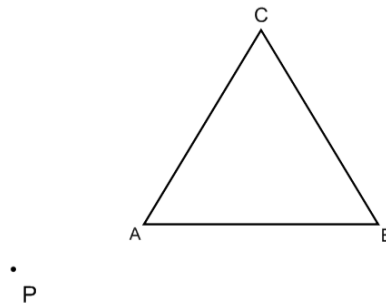
****ALL POSITIVE ANGLES ARE ROTATED _____!****

CONSTRUCTING ROTATIONS OF 180°

- Using your compass and straightedge, construct the rotation of $\triangle ABC$ 180° about point P.



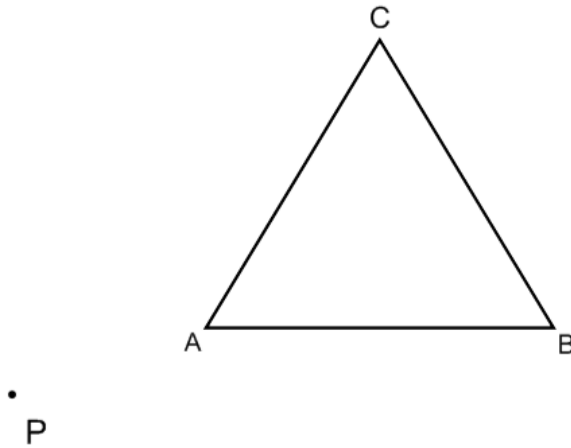
- Using your compass and straightedge, construct the rotation of $\triangle ABC$ 180° about point P.



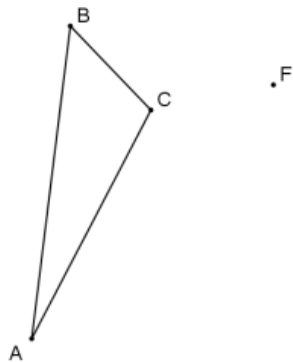
Is $\triangle ABC \cong \triangle A'B'C'$? Explain _____

PRACTICE:

3. Using your compass and straightedge, construct the rotation of $\triangle ABC$ 120° counter clock-wise about point P



4. Construct $\triangle A'B'C'$, after a clockwise rotation of 60° about point F.



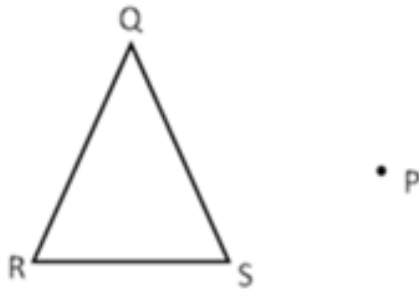
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UNIT 2

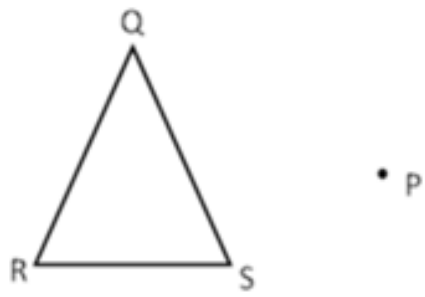
LESSON 7 HOMEWORK

1. Use your compass and straightedge rotate $\triangle QRS$ 120° counter clockwise about point P.

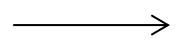


Is $\triangle QRS \cong \triangle Q'R'S'$? Explain _____

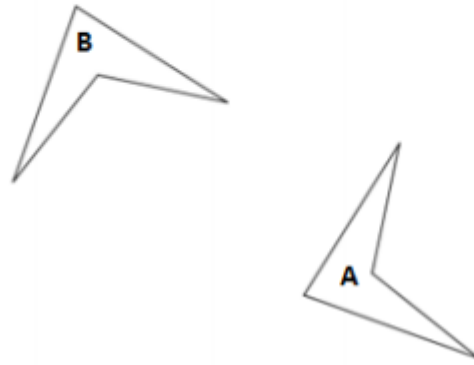
2. Use your compass and straightedge rotate $\triangle QRS$ 180° counter clockwise about point P.



Is $\triangle QRS \cong \triangle Q'R'S'$? Explain _____



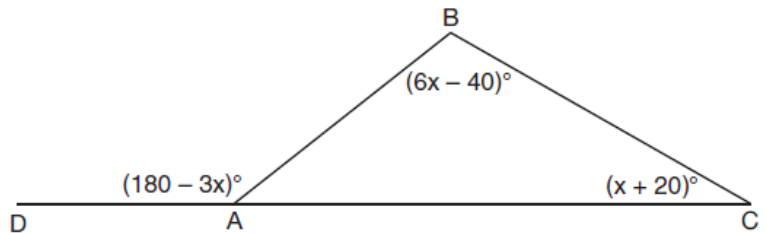
3. Find the center of rotation and the angle of rotation for the transformation below that carries A onto B .



4. In $\triangle ABC$ shown below, side \overline{AC} is extended to point D with $m\angle DAB = (180 - 3x)^\circ$, $m\angle B = (6x - 40)^\circ$, and $m\angle C = (x + 20)^\circ$.

What is $m\angle ABC$?

- (1) 20°
- (2) 40°
- (3) 60°
- (4) 80°



5. Transversal \overleftrightarrow{EF} intersects \overleftrightarrow{AB} and \overleftrightarrow{CD} , as shown in the diagram below. Which statement could always be used to prove $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$?

- (1) $\angle 1 \cong \angle 3$
- (2) $\angle 3$ and $\angle 5$ are supplementary
- (3) $\angle 7$ and $\angle 8$ are supplementary
- (4) $\angle 4$ and $\angle 5$ are supplementary

