## 8-3 Worksheet Rotations of figure through a point that is not the origin*

Directions: Rotate each figure about point C, by the indicated degree measures. Make sure to list the first transformations as prime and second transformation as double prime.

1. Figure $B(2,-1), A(5,-3), D(1,-4)$ rotated $90^{\circ}$ and $270^{\circ}$ counter clockwise around the point $C(1,1)$.

2. Figure $S(1,4), Q(3,2), U(6,5), A(4,7)$ rotated $180^{\circ}$ and $270^{\circ}$ counter clockwise around the point $C(0,1)$.

3. Figure $D(2,6), E(5,6), F(5,2)$ rotated $90^{\circ}$ and $270^{\circ}$ counter clockwise around the point $C(3,1)$.

4. Figure $T(-3,-1), R(-1,-1), A(1,-4), P(-5,-4)$ rotated $90^{\circ}$ and $180^{\circ}$ counter clockwise around the point $C(-2,1)$.


## Worksheet 8-4 Symmetry

Tell what type(s) of symmetry each figure has. If it has line symmetry, sketch the line(s) of symmetry. If it has rotational symmetry, tell the angle of rotation.
1.

2.

3.


5.

6.

7.

8.


Determine how many lines of symmetry each polygon has. Include a sketch to support your answer.
9. regular quadrilateral
11. regular hexagon
10. regular pentagon
12. regular octagon
13. Make a Conjecture What is the relationship between the number of sides of a regular polygon and the number of lines of symmetry?
14. How many lines of symmetry are found in a regular polygon with 40 sides?

Tell whether each three-dimensional object has reflectional symmetry in a plane, rotational symmetry about a line, or both.
15. a light bulb
16. a pair of pants
17. a rectangular table
18. a round table
19. a sand dollar
20. butterfly

