

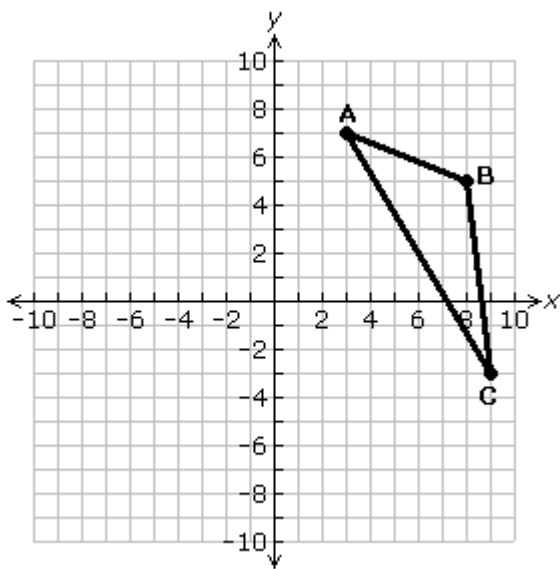
Math by Design Hint Pages

Rotations on a Coordinate Plane

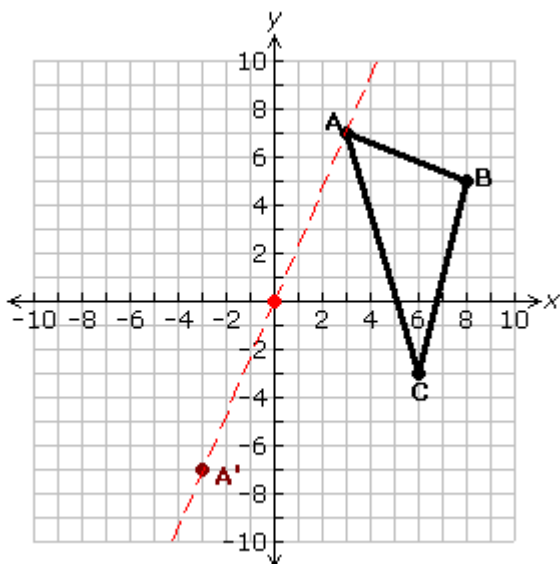
Flossville Park, Who's Hungry Task: Place a snack bar in the park.

When a figure is turned about a given point, the transformation is called a **rotation**. The figure is **rotated** counterclockwise or clockwise about a point.

Example: A triangle has vertices at point A with coordinates (3, 7), B at (8, 5) and C at (9, -3). After the triangle is rotated 180 degrees about the origin, what are the coordinates of its vertices?

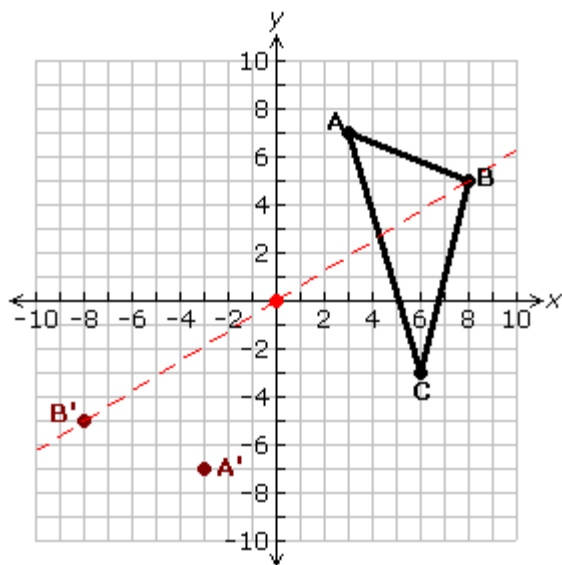


Begin by drawing a ray from the origin through point A. Extend the ray in the opposite direction to create an angle measuring 180 degrees. Locate point A' on the second ray at the same distance from the origin as point A is on the first ray.

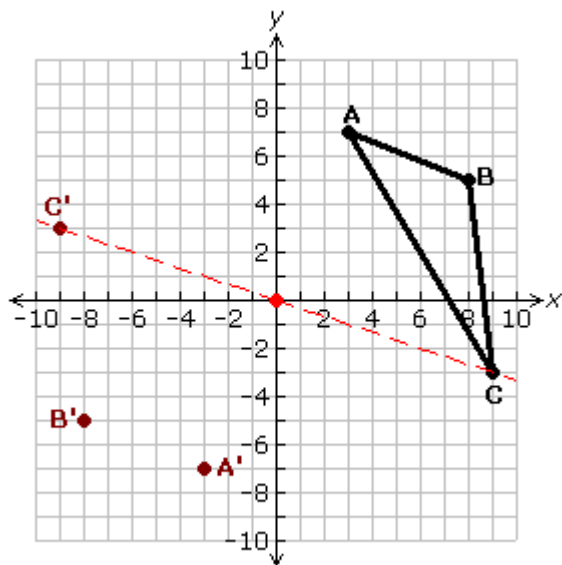


Repeat the process beginning with a ray from the origin through point B and locate its rotation point B'.

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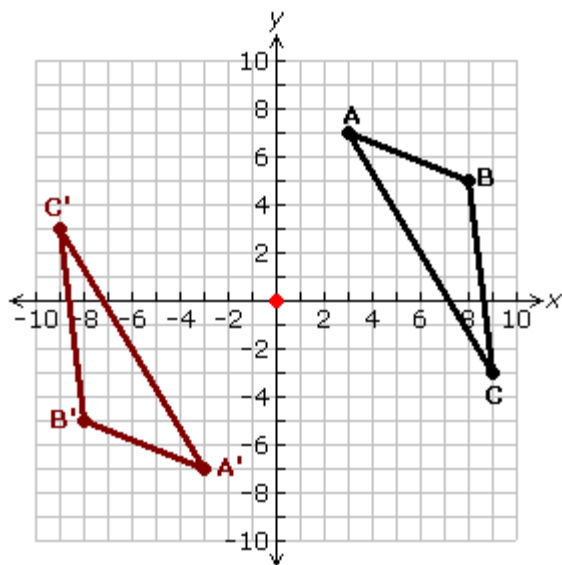


Finally begin with a ray from the origin through point C to locate point C'.



Connect the points A', B', and C' to draw the rotated triangle.

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Answer: After a rotation of 180 degrees about the origin, the vertices of the triangle will be at the points A' at (-3, -7), B' at (-8, -5), and C' at (-9, 3).

Notice the relationship between the coordinates of the original vertices and those of the vertices after the triangle has been rotated 180 degrees.

A at (3, 7) → A' at (-3, -7)

B at (8, 5) → B' at (-8, -5)

C at (9, -3) → C' at (-9, 3)