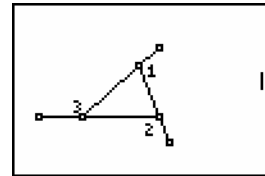
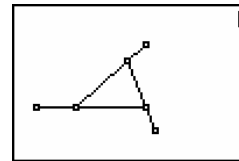
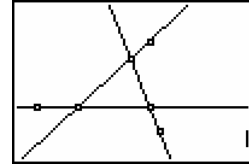
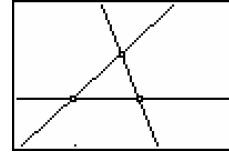


Geometry: Exterior Angle Sums

Part 1: Exterior Angles of a Triangle

Construct a triangle and measure its exterior angles.

- Create three lines that form a triangle.
- Construct three points on the lines and exterior to the triangle.
- Construct three segments connecting the exterior point and the opposite point on the triangle.
- Label the exterior angles 1, 2, and 3.
- Measure angles 1, 2, and 3



Extension:

1. Drag any of the three vertices. Make four different triangles. For each triangle, find $m\angle 1$, $m\angle 2$, and $m\angle 3$. Record their measures and their sum in the table below.

$m\angle 1$				
$m\angle 2$				
$m\angle 3$				
$m\angle 1 + m\angle 2 + m\angle 3$				

2. Study the data in the table. Complete this conjecture about the sum of the measures of the exterior angles of a triangle. The sum of the measures of the exterior angles of a triangle, one at each vertex, is _____.

Part 2: Exterior Angles of a Quadrilateral

Construct a quadrilateral using the same method as creating the triangle above and measure its exterior angles.

3. Drag any of the three vertices. Make four different quadrilaterals. For each quadrilateral, find $m\angle 1$, $m\angle 2$, $m\angle 3$, and $m\angle 4$. Record their measures and their sum in the table below.

$m\angle 1$				
$m\angle 2$				
$m\angle 3$				
$m\angle 4$				
$m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4$				

4. The sum of the measures of the exterior angles of a quadrilateral, one at each vertex, is _____.