

Each problem is worth 2 points. Clear and complete justification is required for full credit. You are welcome to discuss these problems with anyone and everyone, but must create your own Geogebra file. Submit your work as one or several .ggb files clearly named to indicate your name and which problem is which attached to an email to jwhite@coe.edu.

1. Construct a segment in Geogebra and find its midpoint (dynamically, so that if you drag an endpoint the midpoint moves too).
2. Construct a parallelogram (dynamically, so that if one point is dragged the others respond).
3. Construct an angle in Geogebra and trisect it (dynamically, so that if you drag one point the trisecting angles adjust too).
4. Construct three mutually tangent circles, along with a circumcircle (dynamically, so that if you adjust one the others respond).
5. We know that for a convex quadrilateral the sum of the internal angles is less than or equal to 360° . Explore what happens with quadrilaterals that are not convex, with the understanding that we'll use the external angle for the corner where the internal "angle" is greater than 180° .