

Making Rectangles

Some interesting GeoGebraTube explorations: (<http://www.geogebraTube.org/>)

1. Area of a circle:
<http://www.geogebraTube.org/material/show/id/279>
2. Exterior angles of polygons:
<http://www.geogebraTube.org/material/show/id/434>
3. Rotating a function about the x -axis:
<http://www.geogebraTube.org/material/show/id/18290>
4. Dissecting a quadrilateral to make a rectangle:
<http://www.geogebraTube.org/student/m3459>
5. Follow-up with triangles:
<http://www.geogebraTube.org/material/show/id/3589>

Activity 1

Go to exploration #4 on this list and play around with it until you have a good idea of what this exploration is about.

Your task is to **prove** that given any arbitrary **quadrilateral**, if you dissected it in the manner this exploration describes, you will be able to form a rectangle.

In the process of doing this, you should:

- Create your own arbitrary quadrilateral in GeoGebra.
- Construct a proof that does not rely on the actual numerical values of the side lengths or angles. (Use your geometry skills!)

Activity 2 (Extension of Activity 1)

Go to exploration #5 on this list and play around with it until you have a good idea of what this exploration is about.

Your task is to **prove** that given any arbitrary **triangle**, if you dissected it in the manner this exploration describes, you will be able to form a rectangle.

In the process of doing this, you should:

- Create your own arbitrary triangle in GeoGebra.
- Construct a proof that does not rely on the actual numerical values of the side lengths or angles. (Use your geometry skills!)

A further extension would be to determine under what circumstances you could form a square.