Using Technology for Constructions

Let's use technology to construct a diagram.

8.1 How Do Digital Construction Tools Work?

Open the GeoGebra Constructions Tool in the Math Tools (or at https://im612.org/construction-tool).

Familiarize yourself with your digital straightedge and compass tools by:

- Drawing a few circles of different sizes.
- Drawing a few line segments of different lengths.
- Extending some of those line segments in both directions.

Try out any other tools you can find.

8.2 Digital Compass and Straightedge Constructions

Use the GeoGebra Constructions Tool (https://im612.org/construction-tool) to create one or more of these figures:

- A perpendicular bisector of line segment AB
- An equilateral triangle
- A regular hexagon
- A square
- A square inscribed in a circle
- Two congruent, right triangles that do not share a side

In order for your construction to be successful, it has to be impossible to mess it up by dragging a point. Make sure to test your constructions.

8.3 More Helpful Digital Tools

When you open the GeoGebra Geometry Tool (https://im612.org/geometry-tool), you'll see some basic tools. Click on the word "MORE," and you'll see some categories of tools, including "Construct" tools.

perpendicular line



parallel line



1. Construct a line or a line segment and an additional point that is not on it. Then try the perpendicular line tool and the parallel line tool. Use the move tool to drag some points around, and observe what happens.
2. Use any of the digital tools to create one or more of these figures. Test your constructions by dragging a point.
   a. parallelogram
   b. rectangle
   c. rhombus
   d. square

Lesson 8 Summary

We will start with a small set of tools. The GeoGebra Constructions Tool can be found at https://im612.org/construction-tool. These are the GeoGebra tools that do the same jobs as a pencil, a compass, and a straightedge.

Three pencil tools:

point



point on object



intersect



Four straightedge tools:

line



segment



ray



polygon



Two compass tools:

circle with center through point



compass



The GeoGebra Geometry Tool is at https://im612.org/geometry-tool. Click "MORE" to see the hidden categories of tools. Instead of doing each step of a construction, GeoGebra Geometry Tool will perform all the steps of the constructions in our inventory. It has commands for perpendicular lines, parallel lines, and more!

perpendicular line



parallel line

