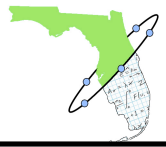


GeoGebra 4.0: Regular Pentagon Construction



Activity: Regular Pentagon Construction

- Objectives
 - Becoming familiar with the basic use of tools and formatting
 - To understand the properties of a Pentagon and how this translates to a construction in GeoGebra.

Introduction:

In this activity you are going to use the following tools. Make sure you know how to use each tool before you begin with the actual construction of the Pentagon:

	Segment between two points		Perpendicular Bisector
	Circle with center through point		Angle
	Intersect two objects		Midpoint
	Polygon		Move

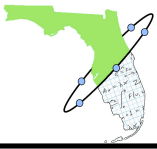
Hint: Look at the file **Regular_Pentagon_Construction.ggb**, if you are not sure about the construction process.

Preparing the Window:

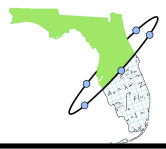
- Open a new GeoGebra file.
- Hide the algebra window, the axes on and the input field. Set labeling to New Points Only.

Construction process:

- Use the **segment between 2 points** tool to draw segment a
- Use the **perpendicular bisector** tool to construct line b perpendicular to segment a
- Use the **intersect two objects** tool to mark the intersection between segment a and line b in order to create points C.
- Use the **circle with center through point** tool to draw circle c with center point C and through point B.
- Use the **intersect two objects** tool to mark the top intersection between circle c and line b in order to create point D.
- Use the **midpoint** tool to mark the midpoint E between points C and B.
- Use the **circle with center through point** tool to construct circle d with center point E and through point D
- Use the **intersect two objects** tool to mark the intersection between circle d and segment a in order to create point F.
- Use the **circle with center through point** tool to construct circle e with center point D and through point F.
- Use the **intersect two objects** tool to mark the intersection points between the circle e and circle c in order to create points H and G.
- Use the **circle with center through point** tool to construct circle f with center point H and through point D.

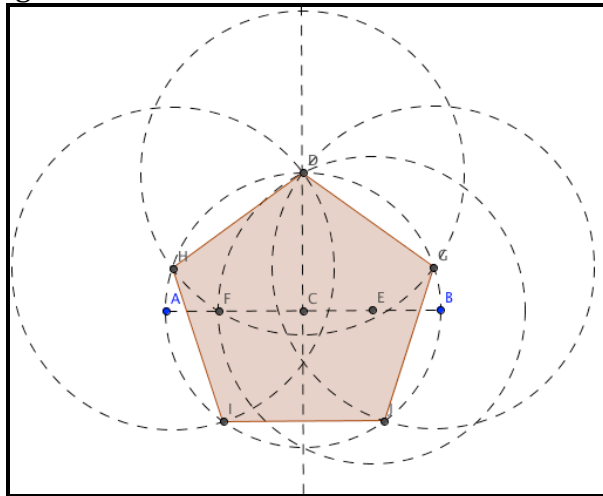


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12. Use the **intersect two objects** tool to mark the new intersection between the circle f and circle c in order to create point I.
13. Use the **circle with center through point** tool to construct circle g with center point G and through point D.
14. Use the **intersect two objects** tool to mark the new intersection between the circle g and circle c in order to create point J.
15. Use the **polygon** tool to create pentagon DHIJG.
16. Use the **angle** tool and click the hexagon to create the interior angles.
Hint: Go to **Edit Object Properties** choose the angles and uncheck Allow reflex.
17. Perform the drag test on points A and B to check if your construction is correct.

The following Image is what your file should look like before hiding any objects or formatting the Pentagon.



Formatting: Select Edit Object properties and format your object in anyway you wish and save your file.

Challenge Questions:

- 1) Are there more ways to construct a Regular Pentagon?