## The Menus

File: Used to open, save, close, and print documents.

Edit: Used to undo and redo actions.

**Display**: Used to control an object's appearance, and to label/hide/animate objects.

**Construct**: Used to construct new geometric objects based on selected objects in your sketch.

Transform: Used to apply geometric transformations to selected objects.

Measure: Used to give various measures based on selected objects in a sketch.

Graph: Used to create grids and axes for plotting points.

Window: Used to manipulate windows within The Geometer's Sketchpad®.

Help: Used to access the available help files.

### The Toolbox

**Selection Arrow Tool**: Used to select, move, and transform objects in a sketch.

**Point Tool**: Used to draw and plot points.

Compass Tool: Used to draw circles.

**Straightedge Tool**: Used to draw line segments, lines, and rays.

**Text Tool**: Used to label/unlabel points and lines, and to write text or captions within a sketch.

Custom Tool: Allows you to define and use custom tools.

### **Creating a New Sketch**

• To create a new sketch window, on the File menu, click New Sketch.





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## **Opening an Existing Sketch**

- On the File menu, click Open....
- Navigate to the directory in which the sketch you wish to open is saved.
- Click the name of the sketch you wish to open. Click **Open**.

## **Saving a Sketch**

To save a sketch for the first time:

- on the File menu, click Save
- navigate to the directory in which you wish to save the sketch
- *The Geometer's Sketchpad*® will give the sketch a name in the **Filename** text box. To use that one, click **Save**.

OR

• to give the sketch the name you wish, delete the given name, and type the name you want into the **Filename** text box. Click **Save**.

To resave a previously saved sketch:

• on the File menu, click Save.

### **Closing a Sketch Without Exiting The Geometer's Sketchpad®**

• On the File menu, click Close.

### **Exiting The Geometer's Sketchpad®**

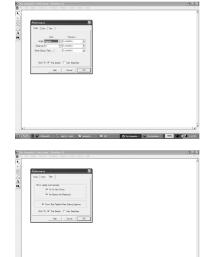
• On the File menu, click Quit.

#### **Setting Preferences**

- On the **Display** menu, click **Preferences...**.
- Click the Units tab.
- Select the desired units and precision for **Angle**, **Distance**, and **Other**.
- If you select **Show Labels Automatically/For All New Points**, *The Geometer's Sketchpad*® will automatically label points as you create them.
- If you select **Show Labels Automatically/As Objects Are Measured**, *The Geometer's Sketchpad*® will automatically label measurements you define.



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By clicking the appropriate box(es) next to **Apply To:**, you can also choose whether your selected preferences for **Units/Text** will apply to only this sketch, or to this sketch as well as all new sketches.

## **Selecting Points and Segments**

- Click the Selection Arrow Tool. The mouse cursor appears as an arrow.
- Move the cursor to the point or segment you wish to select. When the cursor becomes a horizontal arrow, click the point, and it will be selected.

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• To select more than one point or segment, repeat the above step for each item.

### Deselecting

- To deselect a single point or segment, move the cursor to the point or segment you wish to deselect. When the cursor becomes a horizontal arrow, click and the point or object will be deselected.
- To deselect all selected items, click any white space.

## **Constructing Line Segments**

- Click the **Point Tool**, and create two points in the workspace.
- Click the Selection Arrow Tool, and select both points.
- On the Construct menu, click Line Segment.

#### OR

- Click the Straightedge Tool.
- Move the cursor to the workspace.
- Click and hold the left mouse button.
- Drag the cursor to form the segment.
- Release the mouse button.

## **Constructing Triangles**

- Click the **Point Tool**, and draw three points in a triangular shape in the workspace.
- Click the Selection Arrow Tool, and select the three points.
- On the Construct menu, click Segment.





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Sketchpad - [Untitled 2]



#### **Constructing Polygons**

- Click the **Point Tool**. Draw four or more points in the workspace.
- Click the Selection Arrow Tool, and select all the points in either clockwise or counterclockwise order.
- On the Construct menu, click Segment.

### **Constructing Parallel Lines**

To construct a line parallel to an existing line:

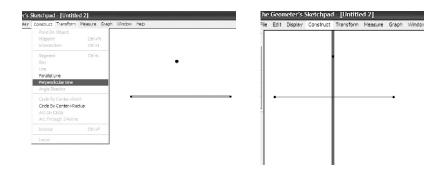
- · click the Point Tool, and place a point above or below the existing line
- · click the Selection Arrow Tool, and select the point and the line
- on the Construct menu, click Parallel Line.

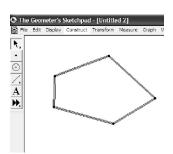
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## **Constructing Perpendicular Lines**

To construct a line perpendicular to an existing line:

- · click the Point Tool, and place a point above or below the existing line
- click the Selection Arrow Tool, and select the point and the line
- on the Construct menu, click Perpendicular Line.





#### **Constructing a Midpoint**

To construct a midpoint on an existing line:

- click the Selection Arrow Tool, and select the line
- on the Construct menu, click Midpoint, and a point will appear on the line. That point will be fixed at the middle of the line.

#### **Finding Measures**

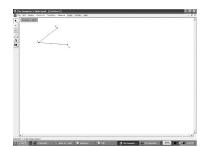
For all measures, *The Geometer's Sketchpad*® will display the desired measure using the units and precision selected in **Preferences...** on the **Edit** menu.

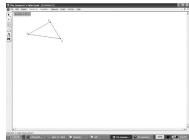
To measure the distance between two points:

- ensure nothing is selected
- · select the two points
- on the Measure menu, click Distance.

To measure the length of a line segment:

- · ensure nothing is selected
- · select the two points
- on the Measure menu, click Length.





To measure an angle:

- ensure nothing is selected
- select the three points that form the angle. Make sure that the second point selected is the vertex of the angle.
- on the Measure menu, click Angle.









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### **Constructing and Measuring Polygon Interiors**

*The Geometer's Sketchpad*® will measure the perimeter and area of a polygon. However, you must construct the interior of the polygon first.

To construct the interior:

- select all the points representing the vertices of the polygon. Here we have a quadrilateral, so four points were selected
- on the **Construct** menu, click **Quadrilateral Interior**. *The Geometer's Sketchpad*® will call the polygon by its correct name up to five sides, after which it will use **Polygon Interior** in the **Construct** menu.

To measure the perimeter and area:

- · click the polygon's interior
- on the Measure menu, click Perimeter
- click the polygon's interior
- on the Measure menu, click Area.

