Name: _____   Date: _____

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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.
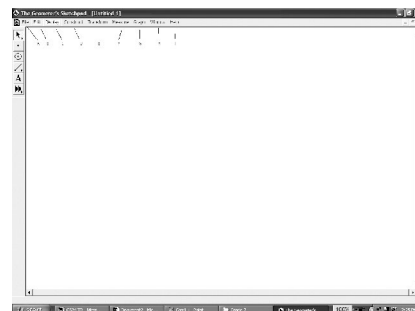
Transform: Used to apply geometric transformations to selected objects.

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.
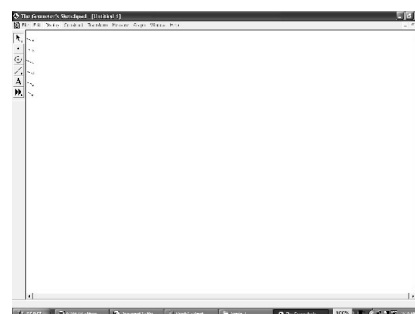
Point Tool: Used to draw and plot points.

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.

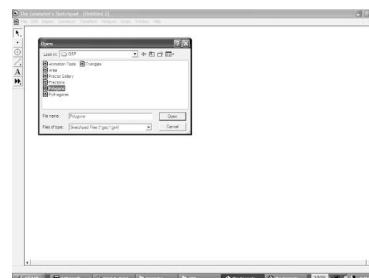**Custom Tool**: Allows you to define and use custom tools.

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.
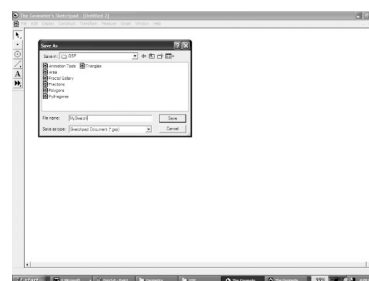- Click the name of the sketch you wish to open. Click **Open**.

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**.

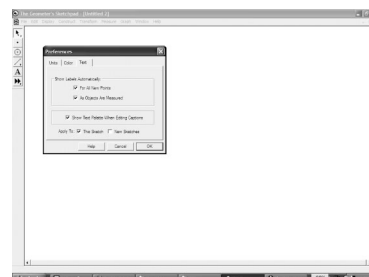## Closing a Sketch Without Exiting *The Geometer's Sketchpad*®

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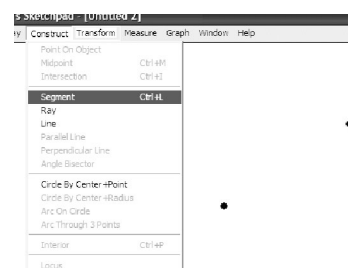
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By clicking the appropriate box(es) next to **Apply To:**, you can also choose whether your selected preferences for **Units/Text** will apply to only this sketch, or to this sketch as well as all new sketches.

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.
• 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.
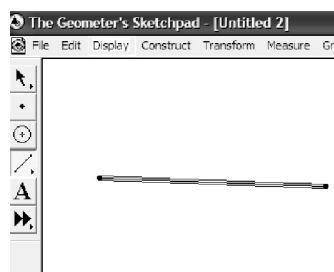• To deselect all selected items, click any white space.

Constructing Line Segments

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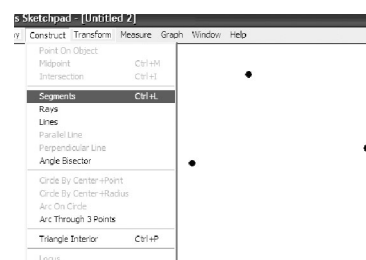• On the **Construct** menu, click **Line Segment**.

  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.
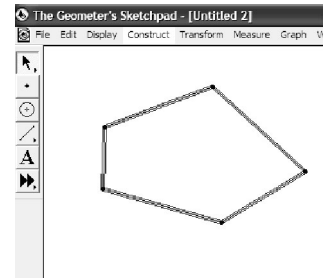• Release the mouse button.

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**.

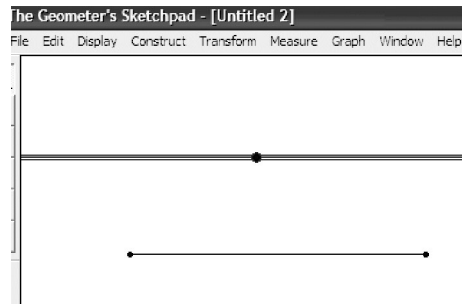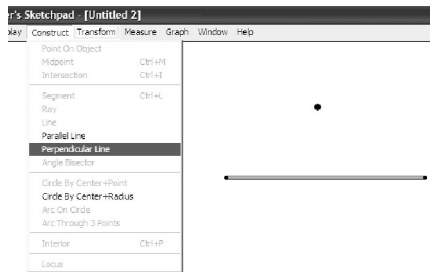# *The Geometer's Sketchpad® 4*

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
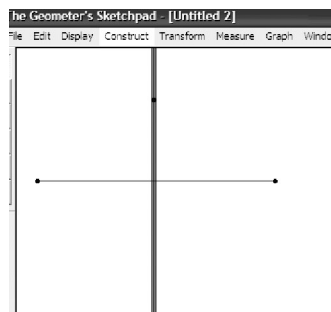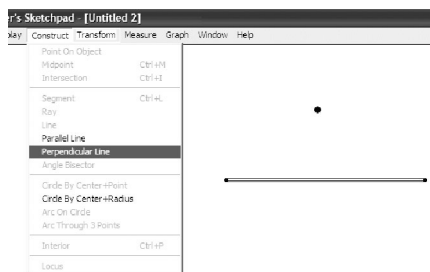
To construct a line parallel to an existing line:
- click the **Point Tool**, and place a point above or below the existing line
- click the **Selection Arrow Tool**, and select the point and the line
- on the **Construct** menu, click **Parallel Line**.

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
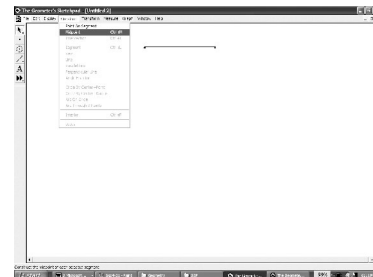- on the **Construct** menu, click **Perpendicular Line**.

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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
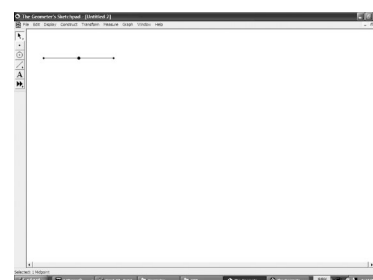 appear on the line. That point will be fixed at the middle
  of the line.

Finding Measures

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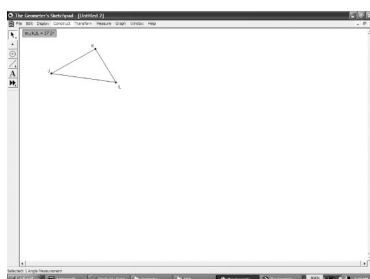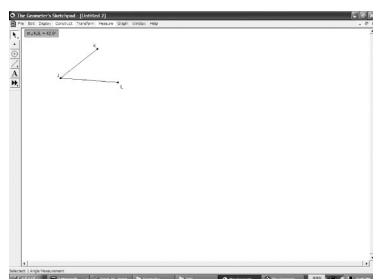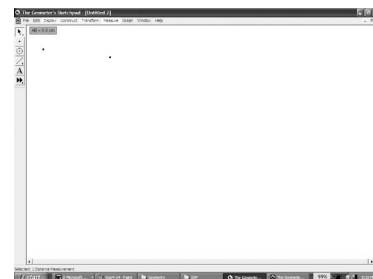in **Preferences…** on the **Edit** menu.

To measure the distance between two points:
• ensure nothing is selected
• select the two points
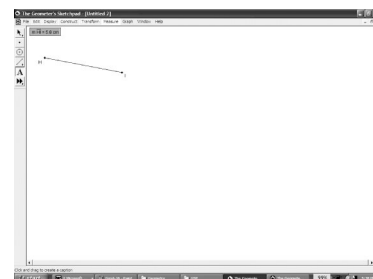• on the **Measure** menu, click **Distance**.

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.
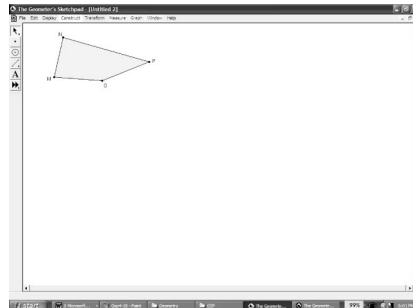• on the **Measure** menu, click **Angle**.

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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**.