
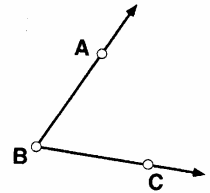



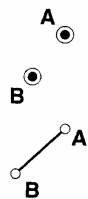
To measure an angle (use the **Selection Arrow** tool )


1. Click on the three points that define the angle. (Make sure you click on the vertex second. To measure $\angle B$, click on A, B, and then C, or click on C, B, and then A.)
2. Go to the Measure menu and choose **Angle**.



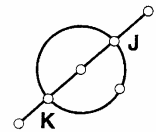
To construct a segment between two existing points (use the **Selection Arrow** tool )


1. Click on the two points.
2. Go to the Construct menu and choose **Segment**.



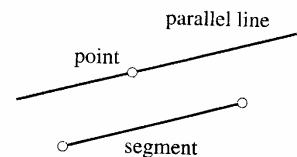
To construct the point(s) of intersection for two objects (use the **Selection Arrow** tool )

1. Click on the two objects.
2. Go to the Construct menu and choose **Intersections**.



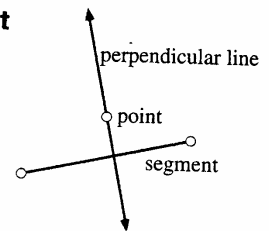
To construct a line parallel to a given line, ray, or segment through a given point (use the **Selection Arrow** tool )

1. Click on the point and the given line, ray, or segment.
2. Go to the Construct menu and choose **Parallel Line**.



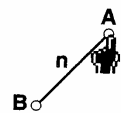
To construct a line perpendicular to a given line, ray, or segment through a given point (use the **Selection Arrow** tool )

1. Click on the point and the given line, ray, or segment.
2. Go to the Construct menu and choose **Perpendicular Line**.



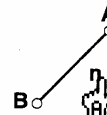
To display or hide a label (use the **Text** tool )

1. Position the **Text** tool over the object and click once. For a segment, click on the segment itself, not on the endpoints.
2. To hide the label, click on the object again (not on the label).

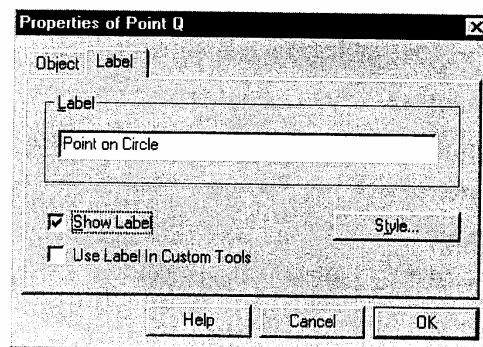


To move a label (use the **Text** tool )


1. Click on the label and drag it to any location close to the object.

**To change a label name** (use the **Text** tool )

1. Double-click on the label.
2. When the dialog box appears, enter the new name in the Label box.









Property Dialog Box (Windows)

To write your name(s) on a sketch and then print (use the **Text** tool )

1. Double-click in a blank space to make a text box.
2. Type your name(s) in this box.
3. Go to the File menu and choose **Print**.

Alanna and Andy

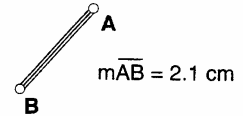

To create and save a custom tool

1. Use a selection marquee to select your figure. (Make sure all parts are selected.)
2. Click on the **Custom** tool  (or ) and choose **Create New Tool**.
3. In the dialog box, type the name of your new tool. Click OK.
4. To try out your new custom tool, click and hold on the **Custom** tool  (or ) until the menu appears. Choose the new tool.
5. Go to any blank space in your sketch. Click and drag. You should see a new figure. If you wish to alter your new figure, use the **Selection Arrow** tool  and then move the figure or click in any blank space and drag a vertex to change its appearance.
6. You can delete your new figure if you wish before you save your custom tool. All custom tools need to be saved in the **Tool** folder, which is located in the **Sketchpad** folder. Use the **Save As** command under the File menu to save your sketch in this folder. You will need to enter the name of the tool again when the Save As dialog box appears.

Note: Later you can open the sketch containing the custom tool and use your custom tool to create your figure in any sketch. The new figure will have the same defining characteristics as your original construction.

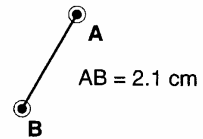
To measure the length of a line segment (use the **Selection Arrow** tool )


1. Click on the segment.
2. Go to the Measure menu and choose **Length**.



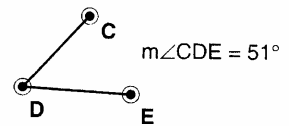
To measure the distance between two points (use the **Selection Arrow** tool )


1. Click on one of the points and then on the other.
2. Go to the Measure menu and choose **Distance**.



To measure an angle (use the **Selection Arrow** tool )

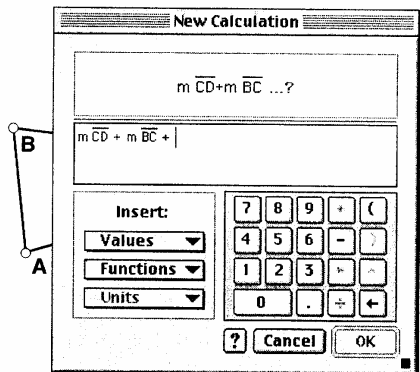
1. Click on three points you could use to name the angle, with the vertex your middle selection.
2. Go to the Measure menu and select **Angle**.



To sum measures (use the **Selection Arrow** tool )

1. Go to the Measure menu and choose **Calculate**.
2. Click on one of the measures that is showing in your sketch.
3. Click on Plus (+) in the New Calculation dialog box and then click on another measure showing in your sketch.
4. Repeat until all the measures you wish to sum appear, then click OK.

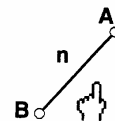

m CD = 2 cm
 m BC = 5 cm
 m AB = 4 cm
 m DA = 5 cm



New Calculation Dialog Box (Macintosh)

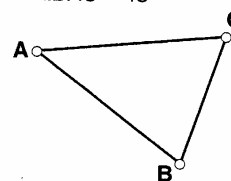
To display a label and move it (use the **Text tool** )

1. Click on the object. For a segment, click on the segment itself, not on the endpoints.
2. To move the label, click on the label and drag it to any location close to the object.


**To make a table** (use the **Selection Arrow tool** )

1. Click on the measures you wish to show in your table.
2. Go to the Graph menu and choose **Tabulate**.
3. Drag the table of values to a convenient place in your sketch.
4. Drag your object to change its measurements.
5. Double-click on your table to add a new row of data. Repeat steps 4 and 5 to add new values.

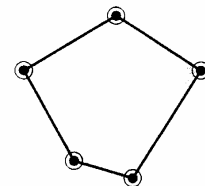
$m\angle ACB = 66^\circ$
 $m\angle CBA = 71^\circ$
 $m\angle BAC = 43^\circ$



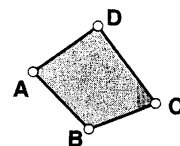
Angle(BAC)	37	43
Angle(CBA)	71	71
Angle(ACB)	72	66

To construct a polygon interior (use the **Selection Arrow tool** )

1. Click on the vertices of the polygon in order, either clockwise or counterclockwise.
2. Go to the Construct menu and choose **Pentagon Interior** or another appropriate command.

**To measure perimeter or area of a polygon** (use the **Selection Arrow tool** )

1. Construct the polygon interior, if you haven't done so already.
2. Click on the polygon interior.
3. Go to the Measure menu and choose **Perimeter** or **Area**.



area ABCD = 2.8 cm²

To write your name(s) on a sketch and then print (use the **Text tool** )

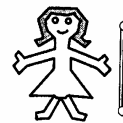
1. Double-click in a blank area in your sketch to create a text box.
2. Type your name(s) in this box.
3. Go to the File menu and choose **Print**.


Becky and David



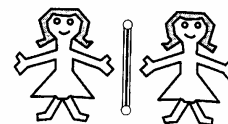
To mark a segment or line as a mirror (use the **Selection Arrow** tool )


1. Click on the line or segment.
2. Go to the Transform menu and choose **Mark Mirror**.



To reflect a figure over a mirror (use the **Selection Arrow** tool )

1. Mark a line or a segment as a mirror.
2. Select the figure.
3. Go to the Transform menu and choose **Reflect**.



To mark a point as a center (use the **Selection Arrow** tool )

1. Click on the point.
2. Go to the Transform menu and choose **Mark Center**.



To rotate a figure by a fixed angle (use the **Selection Arrow** tool )


1. Mark a point as a center.
2. Select the figure.
3. Go to the Transform menu and choose **Rotate**.
4. Choose **By Fixed Angle** in the dialog box.
5. Enter the angle measure.
6. Click Rotate.



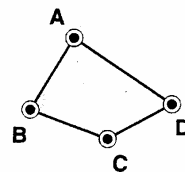
To construct a segment between two existing points (use the **Selection Arrow** tool )

1. Click on the two points.
2. Go to the Construct menu and choose **Segment**.



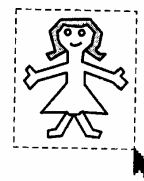
To construct a polygon interior (use the **Selection Arrow** tool )

1. Click on the vertices of the polygon in order, either clockwise or counterclockwise.
2. Go to the Construct menu and choose **Polygon Interior**.
(Note: Sketchpad will always refer to polygons by their specific names.)



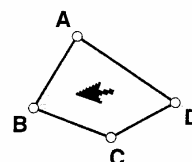
To select a figure using a selection marquee (use the **Selection Arrow** tool )

1. Click above and to the left of the figure. Drag the mouse down and to the right until the dashed rectangle surrounds the figure.
2. Release the mouse button. All objects inside the rectangle should be selected.



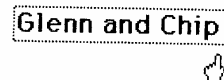
To select the polygon interior of a polygon (use the **Selection Arrow** tool )

1. Click on the shaded area of the polygon.



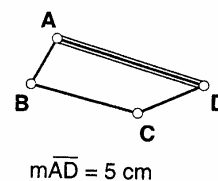
To write your name(s) on a sketch and then print (use the **Text** tool )


1. Double-click in a blank space to create a text box.
2. Type your name(s) in this box.
3. Go to the File menu and choose **Print**.



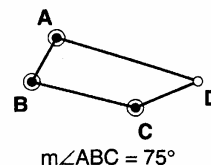
To measure segments or sides of polygons (use the **Selection Arrow** tool )

1. Click on the side or segment.
2. Go to the Measure menu and choose **Length**.
3. Drag the measurement to a different location, if needed.




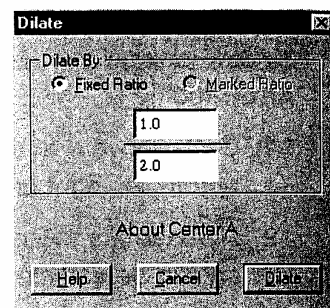
To measure angles (use the **Selection Arrow** tool )

1. Click on the three points that define the angle. (Make sure you click on the vertex second—for $\angle B$, click on **A**, **B**, and then **C** or click on **C**, **B**, and then **A**.)
2. Go to the Measure menu and choose **Angle**.




To dilate a figure by a fixed ratio

1. Select an existing point or use the **Point** tool  to construct a point for your center.
2. Go to the Transform menu and choose **Mark Center**.
3. Use a selection marquee to select the figure. Go to the Transform menu and choose **Dilate**.
4. When the Dilate dialog box appears, enter the scale factors. Click Dilate.

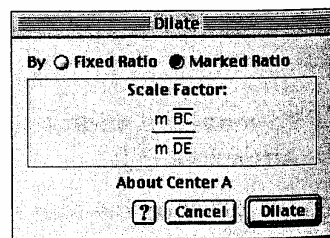
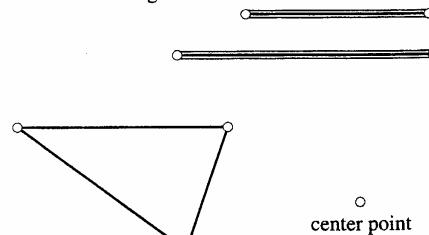


Dilate Dialog Box (Windows)

To dilate a figure by a marked ratio (use the **Selection Arrow** tool )

1. Click on a point to use as your center. Go to the Transform menu and choose **Mark Center**.
2. Construct two line segments in your sketch whose lengths show the ratio by which you wish to dilate. (Or select two line segments already in your sketch.)
3. Click on both segments. Go to the Transform menu and choose **Mark Segment Ratio**.
4. Use a selection marquee to select the figure. Go to the Transform menu and choose **Dilate**.
5. When the Dilate dialog box appears, click Dilate.

segments selected to mark ratio



Dilate Dialog Box (Macintosh)