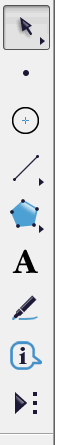
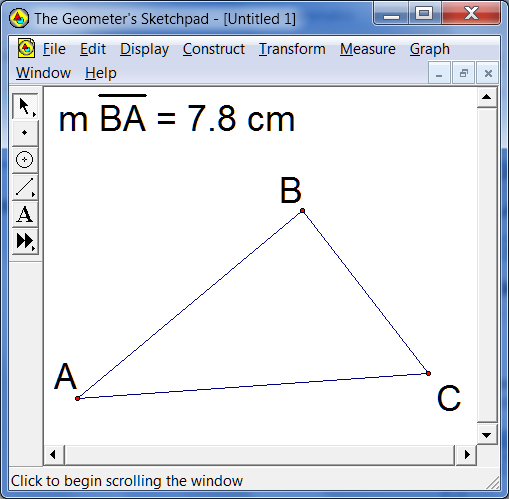
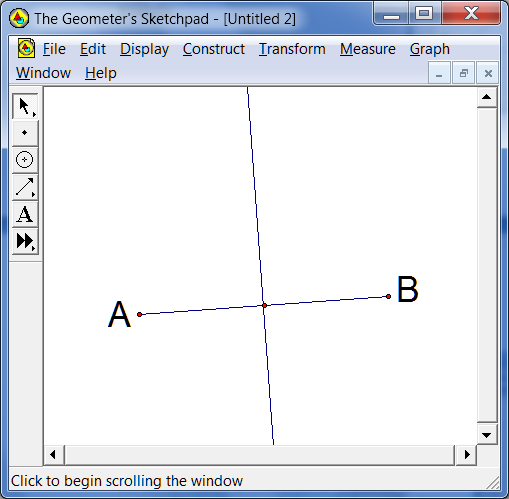
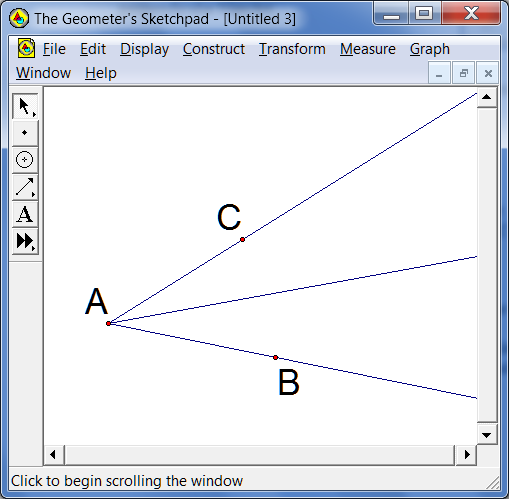
Geometer’s Sketchpad Introduction

In this lesson we will learn how to use a program called Geometer’s Sketchpad (GSP) to do geometric constructions which are an important tool in learning Geometry. When the Euclid and the Greeks developed their geometry around 300 B.C. he only used a straightedge and a compass.

With thepower of modern computers, we can take these constructions to a whole new level.

Open up a new GSP sketch for each of the exercises below and label the points with the given letters as you work through the constructions.

1. **Experiment**
   1. Use the tools in the menu to draw lines, angles, points, and polygons.
2. Drag your mouse over the tools until the name of the tool shows. Write the name of each tool next to the picture to the right.
3. **Triangle Stretch**
   1. Use the segment tool to construct a triangle.   
      Make sure that the endpoints of the segments are “locked” onto each other.
   2. Use the text tool to label the three points *A, B,* and *C.*   
      If you need to change the letter, double click on the point and type in the correct letter.
   3. Using the *Selection Arrow* tool, grab *A* and drag it. Do the same to *B* and *C*  
      Make sure that the triangle does not fall apart when you move these points.
   4. Select side . Click on the *Measure* menu and choose *length.*
   5. Repeat step (d) for each side of the triangle.
4. **Perpendicular Bisector**
   1. Draw segment with the *Straightedge* tool.
   2. Select segment . Use the *Construct* menu to construct the midpoint to
   3. Select the segment *and* the midpoint. Use the *Construct* menu to construct to construct a perpendicular line to AB through the midpoint. This is called the perpendicular bisector.
   4. Use the *Selection Arrow* to move points *A* and *B* and observe how the line is always a perpendicular bisector.
5. **Angle Bisector**
   1. Click on the *Straightedge* tool and change it to a Ray.
   2. Draw a ray and name it by labeling the two construction points.
   3. Draw ray to make ∠ *BAC*
   4. Select the angle by selecting the points *B, A,* and *C*.   
       (The vertex must be the second point selected.)
   5. Click on the *Measure* menu and choose *Angle*.
   6. Now select the angle again
   7. Click on the *Construct* menu and choose *Angle Bisector*.
   8. Use the *Selection Arrow* to move to move points *B* and *C* and observe the result.
6. **Quadrilateral Midpoint Exploration**
   1. Construct quadrilateral *QUAD* (use the text tool to name the points).
   2. Construct the midpoints of each side.
   3. Connect these midpoints in order to make a new quadrilateral inside the original one.
   4. Now use the pointer tool to move each vertex of the quadrilateral.   
        
      What appears to always be true about the quadrilateral formed by the segments joining the midpoints?

# Parallel Lines on GSP

1. Draw Parallel Lines and a transversal and label them as shown to the right.
2. Measure and .

What type of angle pairs are these?  
  
What is true about their measurements?

1. Measure and . What type of angle pairs are these?
2. What is always true about their measurements?
3. Measure and . What type of angle pairs are these?
4. Use the [Measure][Calculate] menu to add and .  
   What is always true about their measurements?