Created by Priya V. Prasad
Spring 2010

GeoGebra Activities

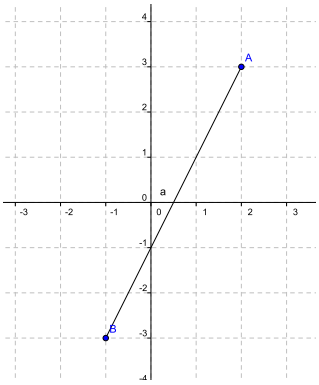
Activity One: Constructing Figures

For this activity, you will be constructing different types of figures, given one side to start from. Leave the "Algebra" window open and DO NOT delete the axes. Both of these will be helpful to you in this activity. Also, you will want to show the grid as well.

Shapes:

parallelogram
rectangle
square
isosceles triangle
equilateral triangle

1. Plot the following points: $A(2, 3)$ and $B(-1, -3)$. Draw the line segment connecting these two points. You should have a picture that looks like this:



2. Pick a shape from the list at the top. Using the segment given as one side of the shape, construct the rest of the shape. Then answer the questions in #3 for the shape before moving on to the next figure you construct.

3. Once you have created the shape, answer the following questions on a separate sheet of paper:

   (a) List the vertices of the shape: _____

   (b) Sketch a picture of what you see on your screen (include everything you used to create the shape, not just the final shape itself).

   (c) How did you create the shape from the given segment? Explain what you did step-by-step.

   (d) Suppose one of your classmates doubts that the shape you have shown is in fact the sort of shape that was asked for. Using your sketch, provide enough information about the shape to convince this classmate that your figure is valid.
   Hint: the Algebra window might be helpful.

   (e) Is it possible to make another version of the shape from the same segment AB that has a different area as your original shape? If so, make another version of the shape and list its vertices. If not, **explain** why this is not possible.

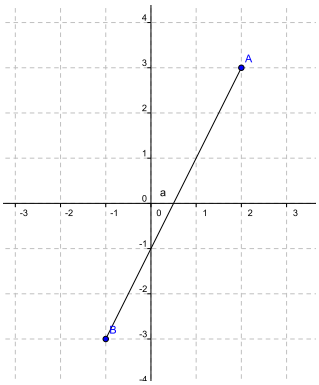
4. Clear all your work except for segment AB and move on to the next shape.

Activity Two: Constructing More Figures

Shapes:

regular hexagon
trapezoid
kite

1. Plot the following points: $A(2, 3)$ and $B(-1, -3)$. Draw the line segment connecting these two points. You should have a picture that looks like this:



2. This time, construct the shapes listed above. After each shape is constructed, make a sketch of everything you seen on your computer:

3. Again, write down enough information about your shape to prove to someone else that you've created the correct shape.