

## *Step-by-Step*

# Constructing a Constellation Image With Geometry Inventor

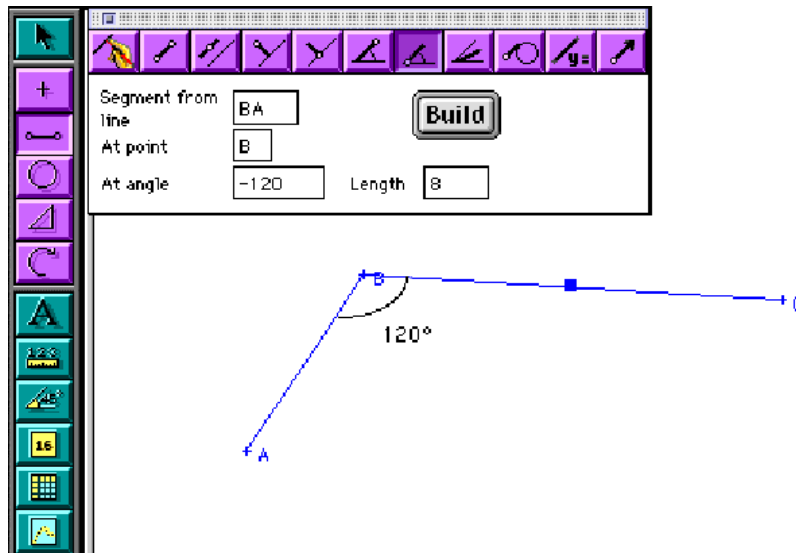
In this Step-by-Step Card, you will create a constellation image in Geometry Inventor, using information obtained from *Starry Night Backyard*. Geometry Inventor allows you to create geometric shapes by specifying properties such as length and angle from a previous segment. This image will then be used to help create the 3D image in a box.

To draw a constellation in Geometry Inventor, you use the Freehand Point tool in the Point Tool subpalette, and the Segment tool and the Angle From Line tool in the Line Tool subpalette. The measurement unit for segment lengths is centimeters.

In Geometry Inventor, angles are drawn in a clockwise direction. It is helpful to think of the line segment that would swing around to create the angle, and the point that will be the vertex of the angle. To create an angle in the counterclockwise direction, you need to fill in information that tells Geometry Inventor to draw it in the negative direction.

- 1** Open the Geometry Inventor application.
- 2** Use the Freehand Point tool in the Point Tool subpalette to place the first point of your constellation. This will be point A. Place it in such a way that your constellation will be likely to fit on the screen.
- 3** Use the segment tools to create line segment AB. Select the location of B in such a way that your constellation will be likely to fit on the screen.
- 4** Draw the rest of the constellation by creating angles and segment lengths.

In the figure below, segment AB was drawn first. To draw an angle measuring  $120^\circ$  in a counterclockwise direction, you would think about the segment BA (starting at B) swinging counterclockwise (in the negative direction) 120 degrees. To create this angle, select the Angle From Line tool in the Line Tool subpalette as shown. Enter the information in the boxes as shown. The first letter of the segment name should be the point from which the angle is to be drawn; that is, name the segment BA, not AB. Enter a negative value for the angle measure to have Geometry Inventor draw the angle in a counterclockwise direction.



**Tip:** If you make a mistake, choose Undo from the Edit menu to remove the most recently constructed object. You can also use the Arrow tool to select any object and press the Delete key to remove it.

- 5 Once you've drawn a line, fill in new information in the spaces presented by the Angle From Line tool and click Build to draw the next line.
- 6 Work your way around the constellation, letting Geometry Inventor build the picture for you.
- 7 To move the entire image, choose Select All from the Edit menu and drag the image. You could also just select segment AB (click the line segment). Since all the points are defined in terms of these two, moving segment AB moves the entire image.

**Tip:** Do not use the Rotate tool to rotate the image. Either point A or point B can be moved to rotate the image. Moving point A rotates the image around point B and moving point B rotates the image around A. Be careful not to resize the image when trying to rotate it.

- 8 Save your constellation.
- 9 Quit Geometry Inventor.