

Exploring the Area and Perimeter of a Triangle

1. First open online GeoGebra software by typing in your browser the following URL address of GeoGebra www.geogebra.org. You can access the software online or you can work offline by downloading the software onto your device by clicking the download link.
2. Opening GeoGebra and choosing the graphing calculator option will produce a window similar to the figure below.

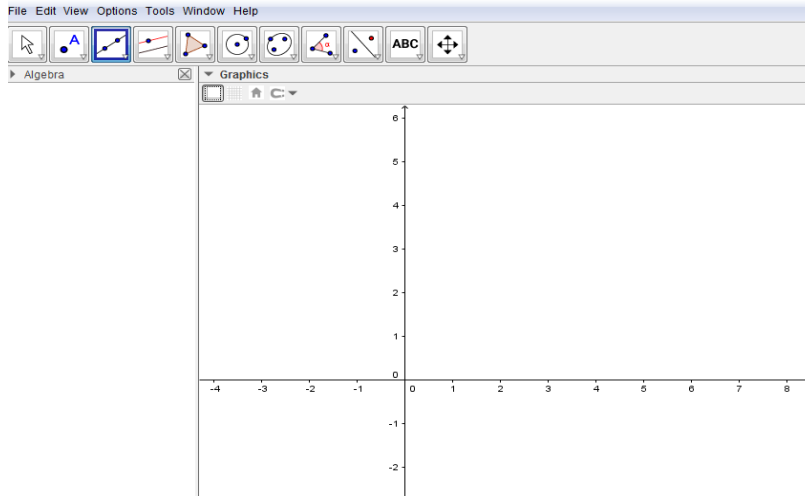


Figure 1. GeoGebra window.

3. To draw a line, in the tool bar select the line tool and draw a line that passes through two points (automatically the software will create points A and B as you click and draw a line that passes through the two points). See figure2 below.

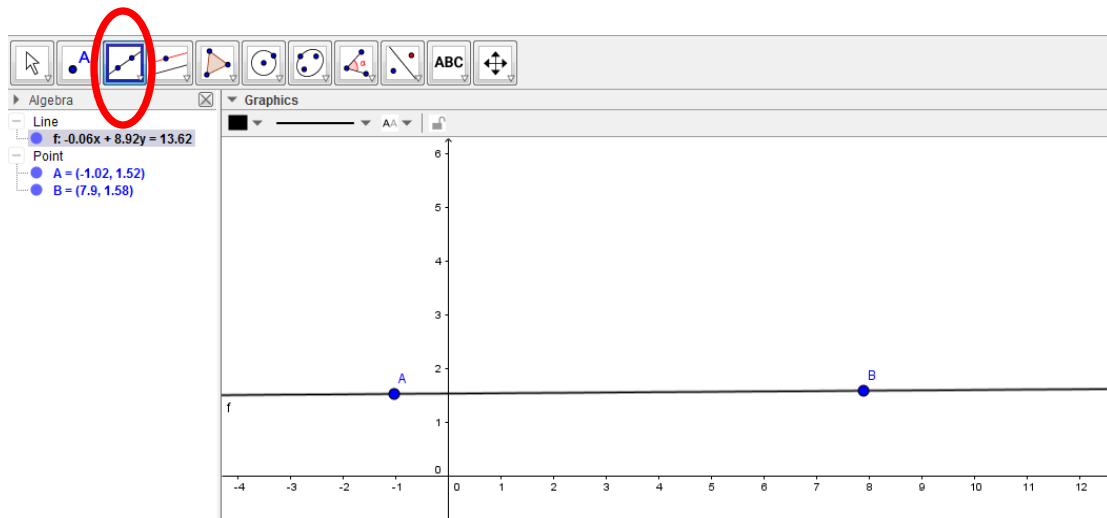


Figure 2. A line AB

- Next, draw a line parallel to AB that passes through a single point C by selecting a parallel line tool on the tool menu. See figure 3.

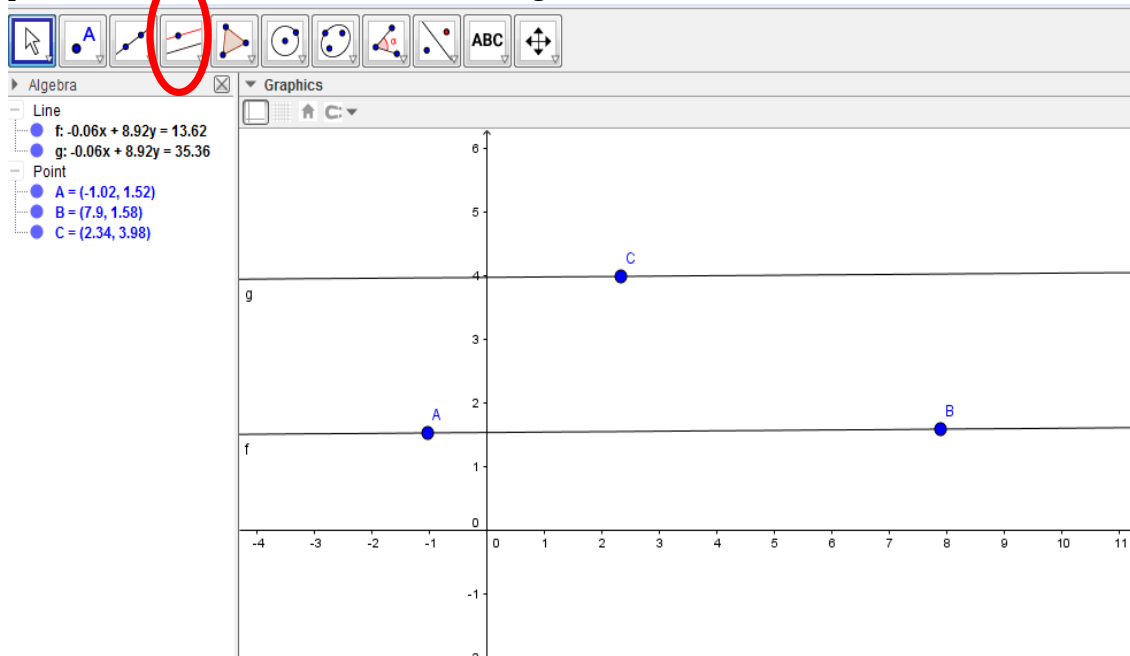


Figure 3. Three non-collinear point ABC constructed

- Now, create a point (point D) on the parallel line and construct triangle ABD. Use the polygon tool on the tool menu to construct the triangle.

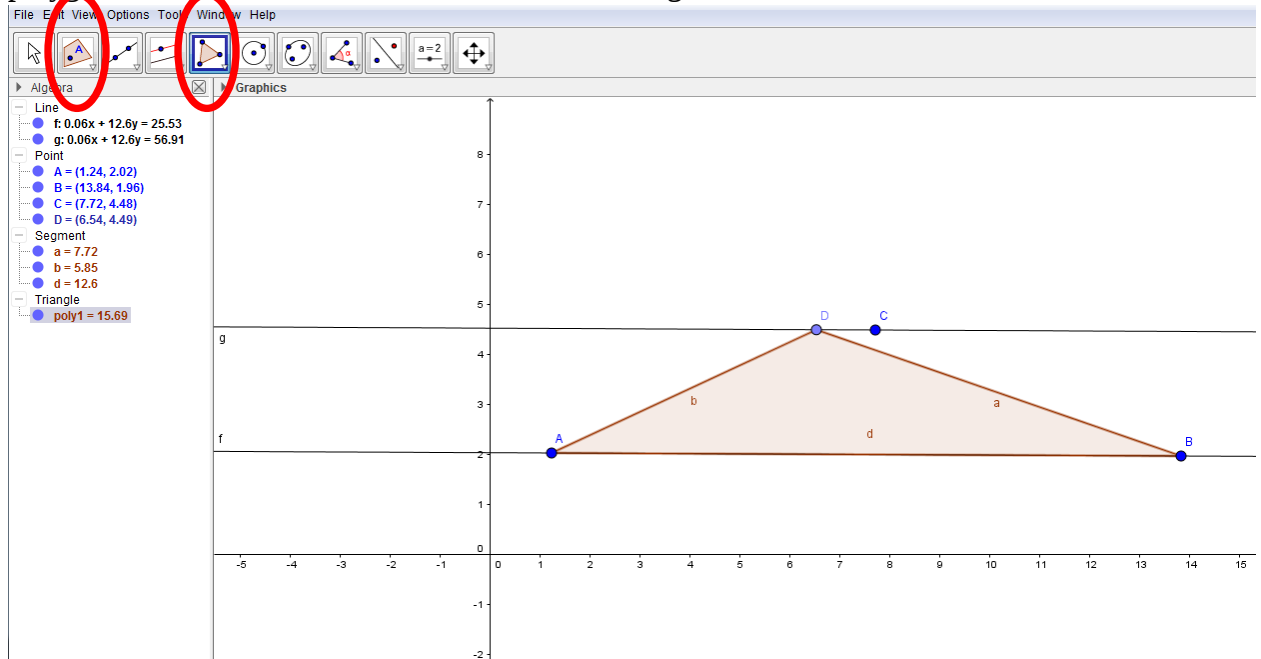


Figure 4. Triangle ABD

- After drawing triangle ABD, you can hide unnecessary line segments, axes, or objects by right-clicking them and deselecting the “Show Object” option or by deselecting the radio button for each item in the algebra pane. See figures 5 and 6.

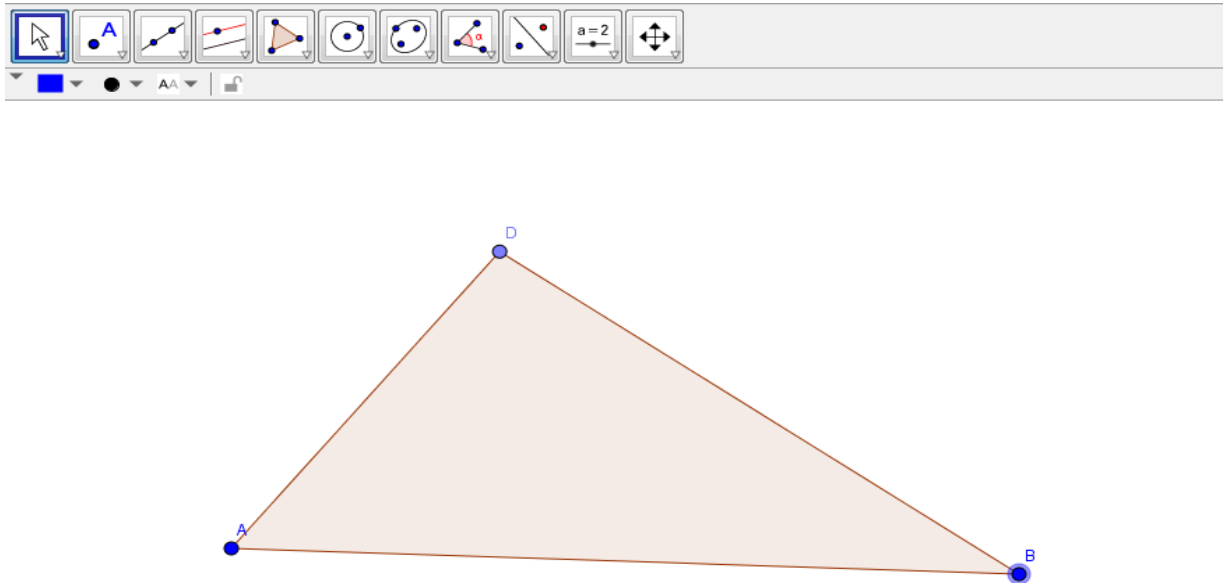


Figure 5. Triangle ABD

- To show the area and perimeter values, you will first need to type `Perimeter=Perimeter[poly1]` algebra pane input bar (see bottom of figure 6). Then, select the text tool from the insert button (circled in figure 6 - it may say “a = 2”). In the box that comes up, write `Area =` and select “poly1” from the objects menu. Then, type `Perimeter =` and select “Perimeter” from the object menu. Then click the ok button.

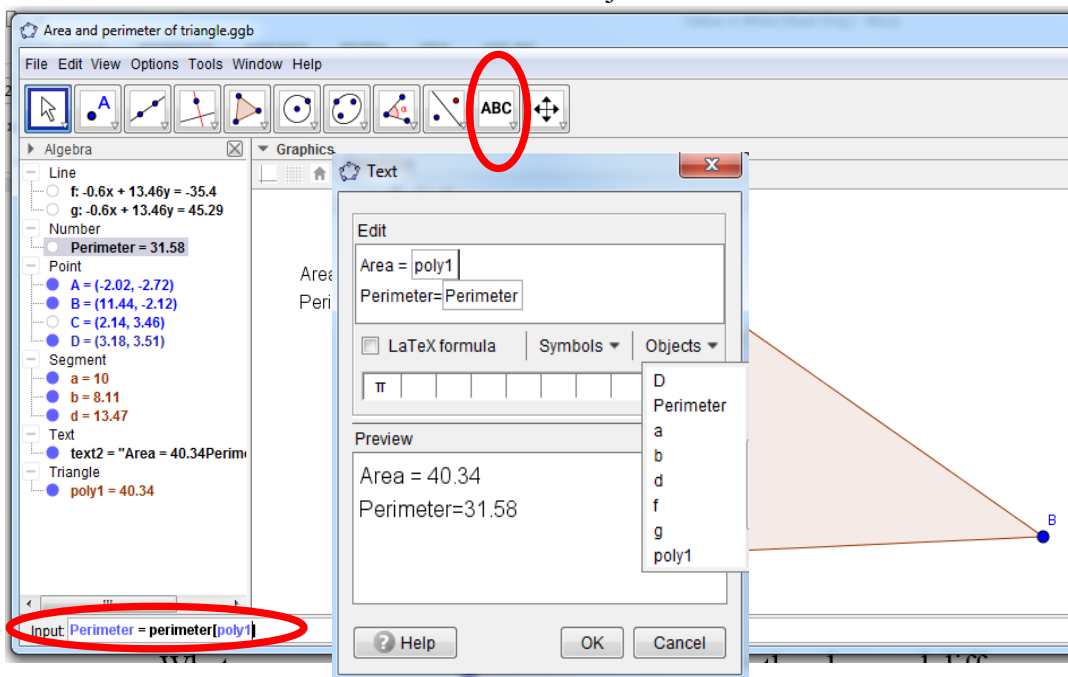


Figure 6. Area and perimeter of triangle ABD