Video “Introduction to Geogebra” transcript

Opening Webcam

Hello, and welcome to this first week of the ***Teaching Mathematics with Technology*** course. In this video, we will get introduced to the Geogebra software, and we will explore some basic features.

I will open the Geogebra Classic version 5 on my Ubuntu GNU/Linux operating system. You can do the same on your Windows or Mac operating system. You can also access it online at Geogebra.org/classic.

Geogebra construction

In this video, we will learn how to construct an angle similar to the angle that you are seeing in the Geogebra file in front of you. I will open a new Geogebra window. In this Geogebra window, we see a graphics view, this is a space where we can do constructions. We also see an *Algebra view*, which I will close for now, and we will see later on, once we have finished our construction. In this view, we can see the menu bar which comprises options like *file, edit, view, etc*. This is very similar to the menu bar you see in most applications including those you are familiar with such as Microsoft Word or LibreOffice Writer.

In the *File menu* option for instance we can - *open* a file, *create* a new file, as well as *save* an existing file. We will explore the menu option later on. Below the menu bar, we can see the toolboxes of Geogebra. Each toolbox has got several tools related to one particular area. For example, this toolbox has items related to lines and segments. We will be constructing the angle using the tools available in these toolboxes.

For constructing an angle I need three points, so I will go to the *point* toolbox and I will select the tool *point*. When I select the *point* tool from the *point* toolbox I can see that tooltip is available on the top right part of the screen. So for a *point*, *Geogebra* asks me to select a position or line function, or curve. I will select three positions on the screen to plot the three points. I can label these three points by clicking on them and the minute I click on them, the style bar becomes active - the style bar is just below the toolbox; and I can select the name of the particular object to display the label on the screen.

Similarly, I can do the same for the other two objects as well, and the three points are labelled A, B, and C. Now I shall construct a segment to connect the points so that I can create the angle. For that, I need to go to the segment option - segment toolbox and select the segment tool. The tooltip says that to construct a segment I need to select two points or positions. I am going to select two points at a time, to construct segment AB and segment BC.

For Geogebra these are still two segments, the angle is not yet constructed. To construct the angle I need to go to the angle toolbox and select the angle tool, the tooltip says I need to select three points or two lines. I am going to select the point C, B and A to construct the angle. I am also going to label the angle with name and value. I will select the angle first and then I will go to the *name*

and value option and I can see that the angle is defined as alpha equal to 43.230. Angles are labelled through brief Greek letters and points are labelled through upper case letters in the Latin script.

Now if I want to move objects on the screen, I need to go to the *move* toolbox and select the *move* tool. I can select and move labels, as you can see, so that they are positioned better. I can also select point C and move point C. You can see that when I move *point C* the *segment BC* length changes as well as the value of the *angle alpha*, that also changes.

I can also change the properties of different objects; so, for example, I could select the segment AB. You can see that the minute I click on segment AB, it becomes bold or highlighted. I can change the colour of the segment. I can also change the thickness of the segment very similar to what you saw on the screen at the beginning of the video.

Having constructed the object I would like to see the *Algebra view* to see the algebraic representations of these objects, so when I open the *Algebra view* I can see that the angle, the points, and the segments which I have constructed in the *graphics view* are now available on the *Algebra view,* and they are the equivalent algebraic representations of these objects.

I would like to now save the file for which, I need to go to the F*ile menu* and click on *file save.* I can give a meaningful name like- angle, and I can see that *Geogebra* has saved this as *angle.ggb*; .gbb is the extension for any Geogebra file just like .odt is an extension for the LibreOffice Writer.We learnt how to move objects, Geogebra also allows us to move the entire graphics view by going to the graphics toolbox. I can select the move graphics view and this will allow me to move the entire graphics view itself. I can also export the Geogebra file to different formats such as a web page or an image.

So in this video, what did we learn? We learnt how to construct points, segments, angles, we labelled these objects, we formatted them, we also measured the values, we learnt how to move objects as well as the graphics view. We also learnt how to activate this style bar and the toolbar help. We saw the algebra view, we also learnt how to save and export our file.

Closing Webcam

In this video, we explored some basic features in Geogebra and constructed segments and an angle. We labelled and measured these objects. You can try to construct these objects and also other objects using the toolboxes in Geogebra.