

**Summary 4****Constructing Graphs of Trigonometric Functions**

This activity will move from the examining trigonometric ratios of a single varying angle to the coordination of angle input and ratio output in graphed function form. Students will use their geometrical knowledge to transform signed lengths (unit ratios) from the unit circle construction to be perpendicular to and with an endpoint on the x-axis. The angle and ratio lengths will be coordinated and a (familiar to instructors) function graph will be produced. Students are provided with an example construction in their version of the GSP sketch. An instructor sketch is provided and has action buttons to step through the construction of each locus. Students will interpret the graph of the function in terms of domain, range, sign changes, zeros, angles which result in undefined outputs, and period of the trigonometric functions. This activity provides an opportunity for comparison of the conjectures from the previous activity to the newly gathered so that students can address any misconceptions they developed. By constructing the graphs of the trigonometric functions, instead of plugging an equation into a calculator, students will have an integrated understanding of the graphical representations of the trig functions.