**Activity 6.3.1A Part 2 Virtual Spaghetti**

1. How does the length of the spaghetti piece (represented as a gold segment) change as point *P* is dragged about the unit circle?
2. What is the maximum length that a spaghetti piece may attain?
3. When or where is the maximum reached?
4. What is the minimum length of any spaghetti piece?
5. When or where is the minimum reached?
6. Are spaghetti lengths unique for a particular angle measure? In other words, is it possible for two different angle measures to have the same corresponding spaghetti length? Why or why not?

The algebraic representation for the spaghetti graph generated by a circle of radius 1 is

*y* = 1sin *x*.

How would you change *y* = 1 sin *x* to make the function match the graph generated by a circle with radius 2? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In the table below, provide function definitions that match spaghetti graphs for the given radii.

**Length of Radius Function Definition**

|  |  |
| --- | --- |
| **Length of Radius** | **Function Definition** |
| **1** | y = 1 • sin x |
| **2** |  |
| **1.3** |  |
| **1.5** |  |
| **4** |  |
| **a** |  |