Getting to a new idea

The domain of the function $f(x) = \dfrac{\sin x}{x}$ is all real numbers except 0. Since we cannot use 0 as an input, we might ask *What are outputs like for inputs near 0?* To be more specific, we can do the following:

- Choose a infinite list of inputs x that "ends" at 0.

- Compute the outputs $f(x)$ that correspond to these inputs.

- Ask *Does the list of outputs "end" at some specfic value?* If so, what value?

1. The table below gives one infinite list of inputs x that "ends" at 0. The output for the first input in the list is also given. Confirm that this is the corect output. Then finish carrying out the above steps for this list. Note: Calculate values for $\sin x$ using the radian mode on your calculator.

x	$f(x) = \dfrac{\sin x}{x}$
0.1	0.9983341665
0.01	
0.001	
0.0001	
0.00001	
0.000001	
$\vdots$	$\vdots$
0	?

2. Next, create at least two more lists of inputs x that "end" at 0 and carry out the above steps for each.

3. You've now looked at several input lists all "ending" at 0. Do the corresponding output lists for $f(x) = \dfrac{\sin x}{x}$ all "end" at the same value?