Math Lab

 1.

2. There is no way to tell by the graph that there is a hole at x=0. There is no way just by the graph that x=0 is undefined

3. I estimate by the graph that the limit of the function when x=0.

4. The function’s value when x=5 is -0.1918. The function’s value when x=10 is -0.0544.

5. When I substitute x for zero, I get NaN or Not a Number.

6. All of the following values are when x is approaching zero from the right. The value for when x=1.0 is 0.8415. The value when x=0.8 is 0.8967. The value for when x=0.6 is 0.9411. The value for when x=0.4 is 0.9735. The value for when x=0.2 is 0.9933.

7. All of the following values are when x is approaching zero from the left. The value for when x=-1.0 is 0.8415. The value for when x=-0.8 is 0.8967. The value for when x=-0.6 is 0.9411. The value for when x=-0.4 is 0.9735. The value for when x=-0.2 is 0.9933.

8. The limit of the function f is 1.

9.



The limit does not exist at 0. The values go to infinity from the right and negative infinity from the left. All of the following values are when x approaches zero from the right side. The value for when x=2.0 is -0.2081. The value for when x=1.5 is 0.0472. The value for when x=1.0 is 0.5403. All the following values are when x approaches zero from the left side. The values for when x=-2.0 is 0.2081. The value for when x=-1.5 is -0.0472. The value for when x=-1.0 is -.05403. The value for when x= -0.5 is -1.7552. The limit is not a real number.

10. g(x) does not have a limit. From the left of zero, the x values go to infinity. From the right of zero, the x values go to negative infinity.

11. There are similar in the fact that they are set up the same but in reality their graph shows that they are in fact very different. The dividing factor between them is that one is only pi/2 over as x is dividing closer and closer to zero. When the cosine gets closer and closer to 1 when x approaches zero, the denominator makes the graph go to infinity. Depending on whether you are approaching x as a negative input or a positive input will affect if x goes to infinity positively or negatively.

12.



All of the following values are from the left. The value for when x=1.0 is 0.5403. The value for when x=1.2 is 0.3153. The value for when x=1.4 is -0.0957. The value for when x=1.6 is -0.8011. The value for when x=1.8 is 0.2837. All of the following values are from the right. The value for when x=3 is 0.5403. The value for when x=2.8 is 0.3153. The value for when x=2.6 is -0.0957. The value for when x=2.4 is -0.8011. The value for when x=2.2 is 0.2837. The limit gave the function back since there is no limit since the graph oscillates indefinitely between 1.6 and 2.4.

13.h(x) does not have a limit as x approaches 2. The graph oscillates too much.

14.



The limit as x approaches infinity is 1 in the graph. The graph does not show this but it can however be mathematically proven.

15. I would type in matlab “limit(function, x, inf, left or right).”

16.