

Math 2001
Read section 1.1

September 5, 2019

Homework 8

1. Make a table of values for $f(x) = \frac{x^2 - 9}{x - 3}$ for values of x close to 3.
Use $x = 3.1, 3.01, 3.001, 3.000001, 2.9, 2.99, 2.999, 2.99999$

2. Make a table of values for $g(x) = \frac{\sin 2x}{x}$ for values of x close to 0. (Use radians!)
Use $x = 0.1, 0.01, 0.001, 0.000001, -0.1, -0.01, -0.001, -0.000001$

3. Find the average rate of change of the functions over the intervals. $\frac{f(x_2) - f(x_1)}{x_2 - x_1}$

a. $f(x) = x^2 + x$ [2,5]

b. $f(x) = \tan x$ [0.12, 0.34]

c. $f(x) = \sqrt{x}$ [9,16]

d. $f(x) = \frac{1}{x^2 + 2}$ [3, 4]

4. Evaluate the following limits.

a. $\lim_{x \rightarrow -1} \frac{x^3 - x^2 - 5x - 3}{(x + 1)^2}$

b. $\lim_{x \rightarrow 2} \sqrt{x - 1}$

c. $\lim_{x \rightarrow 2} \frac{x + 5}{x - 3}$