Math 203 Worksheet 1

(1) \( \lim_{x \to 1} \frac{x^2 + 1}{x - 1} \)

(2) \( \lim_{x \to 1} \frac{x^2 - 1}{x - 1} \)

(3) \( \lim_{x \to 1} \frac{x^2 - 1}{x^2 + 4x - 5} \)

(4) \( \lim_{x \to 1} \frac{\sin x}{x} \)

(5) \( \lim_{x \to 0} \frac{\sin x}{x} \)

(6) \( \lim_{x \to 0} \frac{1}{x} \)

(7) \( \lim_{x \to 0} \frac{x \sin \frac{1}{x}}{x} \)

(8) \( \lim_{x \to -1} \frac{x^2 + 1}{x + 1} \)

(9) \( \lim_{x \to 2} \frac{x^2 + 3x - 10}{x^2 - x - 2} \)

(10) \( \lim_{x \to 2} \frac{\sqrt{x} - \sqrt{2}}{x - 2} \)

(11) Approximate \( \sin .04, \cos .04, \) and \( \tan .04. \)

(12) Find the average slope of \( f(x) = mx + b \) between \( x = 3 \) and \( x = 5. \)

(13) Find the average slope of \( f(x) = mx + b \) between \( x \) and \( x + \Delta x. \)

(14) Find the average slope of \( g(x) = x^2 \) between \( x = 3 \) and \( x = 5. \)

(15) Find the average slope of \( g(x) = x^2 \) between \( x \) and \( x + \Delta x. \)

(16) Find the average slope of \( h(x) = x^3 \) between \( x = 3 \) and \( x = 5. \)

(17) Find the average slope of \( h(x) = x^3 \) between \( x \) and \( x + \Delta x. \)