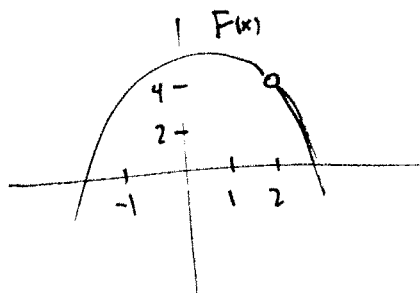


Math 121 HW #5

3.1 # 6, 8, 31, 34, 46

3.1 #6

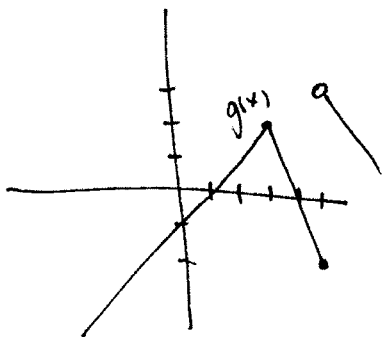


a. $\lim_{x \rightarrow 2} F(x) = 4$

b. ~~lim_{x \rightarrow -1} F(x) = 3~~

$\lim_{x \rightarrow -1} F(x) = 4$.

3.1 #8



a. $\lim_{x \rightarrow 3} g(x) = 2$

b. $\lim_{x \rightarrow 5} g(x)$ DNE.

3.1 #31

$$\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3} = \lim_{x \rightarrow 3} \frac{(x-3)(x+3)}{x-3} = \lim_{x \rightarrow 3} x+3 = 3+3 = 6.$$

3.1 #34

$$\lim_{x \rightarrow -3} \frac{x^2 - 9}{x^2 + x - 6} = \lim_{x \rightarrow -3} \frac{(x-3)(x+3)}{(x+3)(x-2)} = \lim_{x \rightarrow -3} \frac{x-3}{x-2} = \frac{-3-3}{-3-2} = \frac{-6}{-5} = \frac{6}{5}$$

3.1 #46

$$\lim_{x \rightarrow \infty} \frac{x^2 + 2x - 5}{3x^2 + 2} = \lim_{x \rightarrow \infty} \frac{\frac{x^2}{x^2} + \frac{2x}{x^2} - \frac{5}{x^2}}{\frac{3x^2}{x^2} + \frac{2}{x^2}} = \lim_{x \rightarrow \infty} \frac{1 + \frac{2}{x} - \frac{5}{x^2}}{3 + \frac{2}{x^2}} = \frac{1}{3}$$