

1. Let $f(x) = \frac{4x^2 + 8x - 32}{x^2 - 7x + 10}$

(a) Find $\lim_{x \rightarrow \infty} f(x)$. Does $f(x)$ have a horizontal asymptote?

(b) Show the $f(x)$ is undefined at $x = 2$ and $x = 5$

(c) Where is $f(x)$ continuous?

(d) Find $\lim_{x \rightarrow 2} f(x)$. Does $f(x)$ have a vertical asymptote at $x = 2$?

(e) Find $\lim_{x \rightarrow 5} f(x)$. Does $f(x)$ have a vertical asymptote at $x = 5$?

2. (a) Plot $g(x) = \frac{\sin(x)}{x}$ where x is measured in radians. What is $\lim_{x \rightarrow 0} g(x)$?

(b) Plot $h(x) = \frac{\sin(x)}{x}$ where x is measured in degrees. What is $\lim_{x \rightarrow 0} h(x)$?