

Provide a clear and organized presentation. Show all of your work, give exact values only, and completely simplify your answers.

1. If  $f(x) = \frac{\sqrt{18x^3 + 3x^2 - 4x - 1}}{x - e}$ , determine the domain of  $f$  in interval notation.

2. If  $f(x) = \frac{x}{x^2 - 2}$ , determine  $\frac{f(x+h) - f(x)}{h}$