Find the following for $f(x) = \frac{x^2+3x}{x-1} = \frac{x(x+3)}{x-1}$ (if they exist; if they don't exist, state so). Use this information to graph f. Note $f'(x) = \frac{(x-3)(x+1)}{(x-1)^2}$, $f''(x) = \frac{-4}{(x-1)^3}$.

Is f even, odd, periodic? What is the domain and range of f?

[1.5] 1a.) critical numbers: _____

[1.5] 1b.) local maximum(s) occur at $x =$ _____

[1.5] 1c.) local minimum(s) occur at $x =$ _____

[1.5] 1d.) The global maximum of f on the interval [0, 5] is _____ and occurs at $x =$ _____

[1.5] 1e.) The global minimum of f on the interval [0, 5] is _____ and occurs at $x =$ _____

[1.5] 1f.) Infection point(s) occur at $x =$ _____

[1.5] 1g.) f increasing on the intervals _____

[1.5] 1h.) f decreasing on the intervals _____

[1.5] 1i.) f is concave up on the intervals _____

[1.5] 1j.) f is concave down on the intervals_____

[1.5] 1k.) Equation(s) of vertical asymptote(s)_____

[4] 1l.) Equation(s) of horizontal and/or slant asymptote(s)_____

[4.5] 1m.) Graph f