Problem. Consider the function

\[ f(x) = \frac{x^2 + 3x - 4}{2x^2 - 32} \]

(a) What is the domain of this function?

(b) Find and classify all the discontinuities of \( f(x) \).

(c) Compute \( \lim_{x \to c} f(x) \) for \( c = 1 \) and \( c = 4 \).

(d) What are the horizontal asymptotes of \( f(x) \)?

(e) Finally, sketch a graph of \( f(x) \) using all the above data.