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.