

Let $f(x) = \frac{-x^2 + 1}{x^2 - 4}$

1. Find the following limits:

(a) $\lim_{x \rightarrow \infty} f(x)$

(d) $\lim_{x \rightarrow 2^+} f(x)$

(b) $\lim_{x \rightarrow -\infty} f(x)$

(e) $\lim_{x \rightarrow -2^-} f(x)$

(c) $\lim_{x \rightarrow 2^-} f(x)$

(f) $\lim_{x \rightarrow 2^+} f(x)$

2. Does f have any vertical asymptotes? If so, where?

3. Does f have any horizontal asymptotes?

4. Use your answers to sketch a graph of $y = f(x)$