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

1. Find the following limits:

   (a) $\lim\limits_{x \to \infty} f(x)$

   (b) $\lim\limits_{x \to -\infty} f(x)$

   (c) $\lim\limits_{x \to 2^+} f(x)$

   (d) $\lim\limits_{x \to 2^-} f(x)$

   (e) $\lim\limits_{x \to -2^+} f(x)$

   (f) $\lim\limits_{x \to 2^-} f(x)$

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 $y = f(x)$