

1. Compute

$$\lim_{x \rightarrow \infty} \frac{x^3 - 12x + 1}{x^4 + 7}$$

2. Compute

$$\lim_{x \rightarrow \infty} \frac{x^4 + 7}{x^3 - 12x + 1}$$

3. Compute

$$\lim_{x \rightarrow \infty} \frac{\cos(x)}{1 + x^2}$$

4. **Without using technology**, sketch the graph of

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

You should start by looking at  $\lim_{x \rightarrow 0} f(x)$ ,  $\lim_{x \rightarrow 1} f(x)$  and  $\lim_{x \rightarrow \infty} f(x)$ .