Strategies to compute

$$\lim_{x\to\infty} f(x)$$

1. Is it a known limit?

2. **Rewrite it in terms of known limits:**

Strategy 1: Multiply top/bottom by $\frac{1}{x^a}$, where a is the largest power.

Strategy 2: Multiply top/bottom by e^{-rx}.

Strategy 3: Multiply by conjugate.

Strategy 4: Combine Fractions.

Strategy 5: Change variable

Entry Task:

1. $\displaystyle\lim_{x\to\infty} \frac{\sqrt{9x^6-x}}{x^3-x^2}$

2. $\displaystyle\lim_{x\to\infty} \frac{3+5e^{(2x)}}{2e^x+4e^{(2x)}}$

3. $\displaystyle\lim_{x\to\infty} \left(\sqrt{3+2x+x^2} - x\right)$