1. Compute

$$\lim_{x\to-\infty} \frac{\sqrt{1+2x^4}}{2-x^2}.$$

2. Compute

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

Hint: Multiply by $1 = \dfrac{\sqrt{9x^2+1}+3x}{\sqrt{9x^2+1}+3x}$.

3. Compute

$$\lim_{x\to\infty} \frac{2+e^x}{1-e^x}.$$

4. Compute

$$\lim_{x\to-\infty} \frac{2+e^x}{1-e^x}.$$

5. Compute

$$\lim_{x\to\infty} \ln(3+x) - \ln(1+x)$$

6. Compute

$$\lim_{x\to\infty} \arctan(2^{-x})$$

7. Compute

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

8. Compute

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