Problem 1

Find $\lim\limits_{x\to\infty} \dfrac{(x^2+1)\sin(x)}{x^3+2}$

Problem 2

Find $\lim\limits_{x\to\infty} \dfrac{\sqrt{x^2+1}}{x}$

Problem 3

Find $\lim\limits_{x\to-\infty} \dfrac{\sqrt{x^2+1}}{x}$

Problem 4

Find $\lim\limits_{x\to-\infty} \sqrt{x^2-x} - \sqrt{x^2+x}$.

Problem 5

Find $\lim\limits_{x\to 2} \dfrac{1}{x-2} - \dfrac{1}{|x-2|}$.