

## Assignment 5

### Problem 1

Use the fact that  $\lim_{x \rightarrow -\infty} \frac{1}{x^2} = 0$  to determine  $\lim_{x \rightarrow -\infty} \frac{2019 + \sqrt{\pi}}{x^2}$ . What sort of asymptote does  $\lim_{x \rightarrow -\infty} \frac{1}{x^2}$  make?

### Problem 2

Determine  $\lim_{x \rightarrow \infty} \frac{7x^2 + 4x - 2}{2x^2}$ .

Determine  $\lim_{x \rightarrow \infty} \frac{7x^2 + 4x - 2}{2x^3}$ .

### Problem 3

What sort of asymptote does  $\lim_{x \rightarrow -1^+} \frac{2}{x+1}$  make? Find the asymptotes of the curve  $f(x) = \frac{-4}{(x^2-9)}$ .

### Problem 4

Consider the function  $\frac{x^2-3}{2x-4}$ . Divide  $2x - 4$  into  $x^2 - 3$  and use the result to determine the line that makes an asymptote for the function  $f$ .