

EXERCISES 6

MATTEO RIZZI

- (1) Compute the following limits
- (a) $\lim_{x \rightarrow \infty} \frac{2x^3 - 3x^2}{x^2(x^2 + 1)}$
 - (b) $\lim_{x \rightarrow \infty} \tan\left(\frac{\pi x^2 - 3x}{2(x^2 + 1)}\right)$
 - (c) $\lim_{x \rightarrow 0} x \sin\left(\frac{1}{x}\right)$
 - (d) $\lim_{x \rightarrow 1^+} (x^2 - 1)^{\frac{1}{x-1}}$
- (2) Draw the graphs of the following functions
- (a) $f(x) = \log_3 \left(\frac{x^2 + 1}{x^2 - 1} \right)$
 - (b) $f(x) = \frac{x^2 - 5x + 6}{(x-1)^2}$
 - (c) $f(x) := \frac{e^x - e^{-x}}{e^x + e^{-x}}$
 - (d) $f(x) = e^{\frac{x^2 + 1}{x^2 - 1}}$

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