

Homework 16

Calculate the following limits:

$$1. \lim_{x \rightarrow \infty} \frac{3x^3 - 3x + 2}{x^2 - 1}$$

$$2. \lim_{x \rightarrow \infty} \frac{x^2 - 4x + 1}{x^2 - 5}$$

$$3. \lim_{x \rightarrow \infty} \frac{5x^2 - 2x + 7}{3x^2 - 1}$$

$$4. \lim_{x \rightarrow 0} \frac{\sin(3x)}{2x}$$

$$5. \lim_{x \rightarrow \infty} \frac{\sin(3x)}{2x}$$

$$6. \lim_{x \rightarrow 3} \frac{\ln(2x - 6)}{x - 3}$$

$$7. \lim_{x \rightarrow 1} x \ln x$$

$$8. \lim_{x \rightarrow \infty} x \ln x$$

$$9. \lim_{x \rightarrow 1} \frac{x}{\ln x}$$

$$10. \lim_{x \rightarrow \infty} \frac{x}{\ln x}$$

$$11. \lim_{x \rightarrow 2^+} (x - 2)^{\ln(x-2)}$$

$$12. \lim_{x \rightarrow 0^+} (\ln x)^{x-2}$$

$$13. \lim_{x \rightarrow 1} e^{\frac{-1}{(x-1)^2}}$$

$$14. \lim_{x \rightarrow \infty} e^{\frac{-1}{(x-1)^2}}$$

$$15. \lim_{x \rightarrow 1} e^{(x-1)^2}$$

$$16. \lim_{x \rightarrow \infty} e^{(x-1)^2}$$