

Practice on Limits

Compute the following limits

1. $\lim_{x \rightarrow 1} \frac{x^2 + 3x - 4}{x - 1}$

2. $\lim_{x \rightarrow 1} \frac{\ln(x)}{x - 1}$

3. $\lim_{x \rightarrow \infty} \frac{\ln(1 + e^x)}{5x}$

4. $\lim_{x \rightarrow \infty} e^{-x} \ln(x)$

5. $\lim_{x \rightarrow -\infty} xe^x$

6. $\lim_{x \rightarrow 0} \frac{\tan(x) - \sin(x)}{x^3}$

7. $\lim_{x \rightarrow 0^+} (\csc(x) - \cot(x))$

8. $\lim_{x \rightarrow \pi^-} \frac{\sin(x)}{1 - \cos(x)}$

9. $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x^2}\right)^x$

10. $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^{x^2}$

11. $\lim_{x \rightarrow 0} \frac{\int_0^{x^2} \sin(t) dt}{x^4}$