

Tutorial

Week 8

December 6, 2024

1. Prove if the following functions are injective and surjective, then if they are bijective compute its inverse.

(a) $h(x) = x - 1$

(b) $f(x) = x^3 + 1$

(c) $f(x) = (x - 1)^2$

(d) $g(x) = \ln(x) + 1$

(e) $t(x) = e^{2x} - 5$

2. Compute the following limits

(a) $\lim_{x \rightarrow \infty} \frac{\ln(x)}{x}$

(b) $\lim_{x \rightarrow 0^+} x^x$