# Assignment 4 (1/11)

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## Problem 1

Problem 11.3.(57, 58).

## Problem 2

Using the fact that $\frac{\ln n}{n} \to 0$, show that $n^{1/n} \to 1$.

## Problem 3

Problems 11.4.(3, 8, 11, 25).

## Problem 4

For the following sequences where the formula for the $n$th term is given, find the limit if they converge, or prove that they diverge.

(a) $\frac{\sin n}{\sqrt{n}}$

(b) $\frac{4^n}{\sqrt{n^2+1}}$

(c) $\cos(n\pi)$

(d) $\sqrt{n^2+n}-n$

(e) $2\ln(3n)-\ln(n^2+1)$

## Problem 5

Problems 11.6.(5, 8, 14).