

**MATH 2058 - HW 4 - Questions**

**1** (P.84 Q4). Show that the following sequences  $x = (x_n)$  are divergent.

a)  $x_n := 1 - (-1)^n + 1/n$

b)  $x_n := \sin(n\pi/4)$

**2.** Let  $(x_n)$  be an unbounded sequence. Show that there exists a subsequence  $(y_n)$  of  $(x_n)$  such that  $\lim 1/y_n = 0$ .