MATH 2050A - HW 8
Due Date: 26 Nov 2020, 23:59
*You are reminded that your HW is graded based on **both** your idea and your presentation*

Problems: P.148: 2,6,7 (3 Questions in total)

Textbook: Bartle RG, Sherbert DR(2011). Introduction to Real Analysis, fourth edition, John Wiley Sons,Inc.

We type here all the required problems *for your convenience only*. The presentation of the problems here may be different from the original one but the respective solution should be unaffected.

1 (P.148 Q2)**.** Let $f(x) := 1/x^2$. Show that

i. f is uniformly continuous on $A := [1, \infty)$

ii. f is not uniformly continuous on $B := (0, \infty)$

2 (P.148 Q6)**.** Let $A \subset \mathbb{R}$ and f, g be real-valued uniformly continuous functions defined on A. Show that if f, g are bounded on A, then the product fg is uniformly continuous on A

3 (P.148 Q7)**.** Let $f(x) := x$ and $g(x) := \sin x$ be defined on $\mathbb{R}$. Show that

i. f, g are uniformly continuous on $\mathbb{R}$

ii. the product fg is not uniformly continuous on $\mathbb{R}$