

MATH 2058 - HW 8 - Solutions

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 $f, g : A \rightarrow \mathbb{R}$ be uniformly continuous on A . Suppose they are both bounded, show that fg is uniformly continuous on A .

3 (P. 148 Q7). Let $f(x) := x$ and $g(x) := \sin x$. Show that

- i. f and g are uniformly continuous on \mathbb{R}
- ii. Show that fg is not uniformly continuous on \mathbb{R}