1. Let \( f : (2,7) \rightarrow \mathbb{R} \) be defined by \( f(x) = x^3 - x + 1 \). Use the definition of uniform continuity to show that \( f \) is uniformly continuous on \((2,7)\).

2. Let \( f : [3.4,5] \rightarrow \mathbb{R} \) be defined by \( f(x) = \frac{2}{x^3} \). Use the definition of uniform continuity to show that \( f \) is uniformly continuous on \([3.4,5]\).

3. Let \( I \) be an interval and let \( f \) and \( g \) be uniformly continuous on \( I \). Use the definition of uniform continuity to show that \( f + g \) is uniformly continuous on \( I \).

4. Let \( f \) and \( g \) be uniformly continuous on an interval \( I = [a,b] \). Use the definition of uniform continuity to show that \( fg \) is uniformly continuous on \( I \).

5. Let \( I, J \subset \mathbb{R} \) be intervals, \( f : I \rightarrow \mathbb{R} \) and \( g : J \rightarrow \mathbb{R} \) with \( \text{Im} f \subset J \). Prove that if \( f \) is uniformly continuous on \( I \) and \( g \) is uniformly continuous on \( J \) then \( g \circ f \) is uniformly continuous on \( I \).