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Homework 18
Mathematics 2216.01
Due October 28, 2022

1. Suppose A, B, and C are sets. Prove or give a counterexample:
$$A \triangle (B \cup C) = (A \triangle B) \cup (A \triangle C).$$

2. Suppose that $f : A \to A$ is defined by $f(x) = x^2$, where A is a nonempty subset of the real numbers. Find a particular set $A \subseteq \mathbf{R}$ so that f is bijective.

3. Suppose that $f : A \to A$ is defined by $f(x) = x^2$, where A is a nonempty subset of the real numbers. Find a particular set $A \subseteq \mathbf{R}$ so that f is injective but not surjective.

4. Suppose that $f : A \to A$ is defined by $f(x) = x^2$, where A is a nonempty subset of the real numbers. Find a particular set $A \subseteq \mathbf{R}$ so that f is neither surjective nor injective.