Discrete Structures and Theory- Spring 2023
Homework 6
Deadline: 24/03/2023

1. (3 POINTS) Let A, B, and C be sets. Show that $(A - C) \cap (C - B) = \emptyset$ using set identities.
   Hint: recall that $A - B = A \cap \bar{B}$.

2. (4 POINTS) Using set builder notation, show that
   a) $A - \emptyset = A$.
   b) $\emptyset - A = \emptyset$.

3. (4 POINTS) Find the values, if any, of the Boolean variable x that satisfy these equations.
   a) $x \cdot 1 = 0$
   b) $x + x = 0$
   c) $x \cdot 1 = x$
   d) $x \cdot \bar{x} = 1$