Exercise 66. Let $(G, *)$ be a group and let $a, b, c \in G$. Prove the following statements.

    a. *Left cancellation:* If $a * b = a * c$ then $b = c$.

    b. *Right cancellation:* If $b * a = c * a$ then $b = c$.

    c. The equation $a * x = b$ has a unique solution $x \in G$.

    d. The equation $y * a = b$ has a unique solution $y \in G$.

Exercise 67. If $(G, *)$ is a group, and $a, b, c \in G$, is it always true that $a * b = c * a$ implies $b = c$? Be sure to justify your response.

Exercise 68. Is $(\mathbb{Z}, -)$ a group?