

(a) Prove or disprove: $(K, *)$ forms a group where $K = \{a, b, c\}$ and $*$ is given by the following table.

$\curvearrowright$	a	b	c
a	a	b	c
b	c	a	b
c	b	c	a

(b) Let G be a group. (i) Show that if $x^{-1} = x$ for all $x \in G$ then G must be abelian.

(ii) Show that if $x^{-1}y^{-1} = xy$ for all $x, y \in G$ then G must be abelian