Question: 2

Which of the following multiplication tables defined on the set $G = \{a, b, c, d\}$ form a group? Support your answer in each case.

Solution:

Question: 7

Let $S = \mathbb{R} \setminus \{-1\}$ and define a binary operation on S by $a * b = a + b + ab$. Prove that $(S, *)$ is an abelian group.

Solution:

Question: 17

Give an example of three different groups with eight elements. Why are the groups different?

Solution:

Question: 25

Let a and b be elements in a group G. Prove that $ab^n a^{-1} = (aba^{-1})^n$ for $n \in \mathbb{Z}$.

Solution:

Question: 31

Show that if $a^2 = e$ for all elements a in a group G, then G must be abelian.

Solution:

Question: 32

Show that if G is a finite group of even order, then there is an $a \in G$ such that a is not the identity and $a^2 = e$.

Solution:

Question: 33

Let G be a group and suppose that $(ab)^2 = a^2b^2$ for all a and b in G. Prove that G is an abelian group.

Solution: