

Hence for the product defined by the product table (1.1), G is a group. Hence Proposition 1.7 gives that the identity element of G and the inverse of each element of G are unique. Hence $a \in G$ is the identity element of G and

$$a^{-1} = a, \quad b^{-1} = b, \quad c^{-1} = c, \quad d^{-1} = d, \quad e^{-1} = f, \quad f^{-1} = e.$$

In fact (see later), G is *isomorphic* to (i.e. is in some sense equivalent to) S_3 .