FOURTH GRADED HOMEWORK ASSIGNMENT

Problem 1. Let $\boldsymbol{Q}^{\wedge}$ represent the set of *nonzero* rational numbers. Consider the combining rule

$$a \curlywedge b = \frac{ab}{4}$$

Show that $\boldsymbol{Q}^{\wedge}$ forms a commutative group under this combining rule.

Whenever we talk about a group, we must identify the underlying set of elements (called the *universe*) and the operation. We often use an ordered pair to do this. For example, the sentence

"Let $\boldsymbol{G} = (G,*)$ be a group."

means we are discussing a group whose universe is the set *G* and whose operation is *.

Problem 2. Let $\boldsymbol{G} = (G,*)$ be a group and let $a \in G$. Prove that there is exactly one inverse element for a in the set *G*.