**TUTORIAL # 4**

**Algebraic Structures**

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| **Q:1** | Show that the set of integers under ordinary multiplication is not group. |
| **Q:2** | Show that the subset of the complex numbers is a group under complex multiplication. |
| **Q:3** | Show that the set of positive rationals is a group under ordinary multiplication. The inverse of any is |
| **Q:4** | Show that the set of positive irrational numbers together with under multiplication satisfies the three properties given in the definition of a group but is not a group.  (). |
| **Q:5** | A rectangular array of the form is called a matrix. Show the set of all matrices with real entries is a group under component wise addition. That is  . |
| **Q:6** | Show that is a group under addition modulo |
| **Q:7** | Show that is a group under multiplication modulo |