(4) Inverse

$1^{-1} = 1$

$\left(\frac{-1+i\sqrt{3}}{2}\right)^{-1} = \frac{-1-i\sqrt{3}}{2}$

$\left(\frac{-1-i\sqrt{3}}{2}\right)^{-1} = \frac{-1+i\sqrt{3}}{2}$

$\therefore (G,\cdot)$ is group.

$1 \cdot \frac{-1+i\sqrt{3}}{2} = \frac{-1+i\sqrt{3}}{2} \cdot 1$

$\therefore \quad a * b = b * a \quad \forall a, b \in G$

$\therefore (G,\cdot)$ is Comm. gp.

Q/ state and prove cancellation laws theorem?

solution: Let $(G, *)$ be a gp. & $a, b, c \in G$:

(1) If $a * b = a * c$, then $b = c$ (left canc. law)

(2) If $b * a = c * a$, then $b = c$ (Right canc. law)

proof: (1) Let $a * b = a * c$

$\because a \in G$ & G is gp., so $\exists\, a^{-1} \in G \ni$.

$a * a^{-1} = a^{-1} * a = e$. Thereby,

$a^{-1} * [a * b = a * c]$

$e * b = e * c \Rightarrow b = c$

(2) By similar way.