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 جميع اعداد الاصل
 الاول

Q/ show whether the math. sys. (G, \cdot)

$\Rightarrow G = \left\{ 1, \frac{-1+i\sqrt{3}}{2}, \frac{-1-i\sqrt{3}}{2} \right\}$ is comm. gp. or not?

sol.:

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

① closure is satisfy from the table

② ASSO. $1, \frac{-1+i\sqrt{3}}{2}, \frac{-1-i\sqrt{3}}{2} \in G$

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

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

$$1 = 1$$

\therefore Associative is satisfy

③ Identity element is 1 \because it is clear from the table