

① State De Moivre's Theorem

~~then~~ if n is positive or negative integer

then

$$(\cos \theta + i \sin \theta)^n = \cos n\theta + i \sin n\theta$$

if n be a fraction +ve or -ve then one of the value of $(\cos \theta + i \sin \theta)^n$ is $(\cos n\theta + i \sin n\theta)$

② State Gregory's Series

if θ lies between $-\pi/4$ and $\pi/4$ then

$$\theta = \tan \theta - \frac{\tan^3 \theta}{3} + \frac{\tan^5 \theta}{5} - \dots - \infty$$

③ Define Group

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let G be a nonempty set and let ' \circ ' be the binary operation on G , then the set (G, \circ) is called group if ~~and~~ and only if the following postulates are satisfied.

Life lets us ask for what we want, but gives us only what we deserve.

① Closure property = if $a, b \in G$

$$\Rightarrow a \circ b \in G \quad \forall a, b \in G$$

② Associativity = if $a, b, c \in G$

$$\Rightarrow a \circ (b \circ c) = (a \circ b) \circ c \quad \forall a, b, c \in G$$

③ Existence of identity = e

$$\text{if } a \in G \text{ then } a \circ e = e \circ a = a \quad \forall a$$

④ Existence of inverse = if $a \in G$ then

$$a \circ b = b \circ a = e \quad \forall a, b \in G$$

$\Rightarrow b$ is the inverse of a