Compler Number

For
$$z = \alpha + ib$$
.
 $|z| = \sqrt{\alpha^2 + b^2} \ge 0$
 $|z|^2 = z\overline{z}$
 $amplifude = argument = 0 = tom^{-1}(\frac{b}{a})$
 $for - \pi < 0 \le \pi$, 0 is called Principal value.

(3)
$$|Z + Z_2| = |Z - Z_2| \iff Any(Z_1) - Any(Z_2) = \frac{7}{2}$$

 $|Z_1 + Z_2| = |Z_1| + |Z_2| = \implies Any(Z_1) = Any(Z_2)$
 $|Z_1 + Z_2|^2 = |Z_1|^2 + |Z_2|^2 \iff \frac{7}{2}$ is provely imaginary

Any
$$(\pi z_i)$$
 = Z Any (z_i)
Any $(\frac{z_i}{z_2})$ = Any (z_i) - Any (z_2)
Any (\bar{z}) = - Any (z)

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(3)
$$\sqrt{a+ib} = \pm \left[\sqrt{\frac{|z|+a}{2}} + i \sqrt{\frac{|z|-a}{2}} \right] - a_{exa}$$
as $b>0$, $b>0$.

$$\begin{array}{ll}
\widehat{G} & \chi^{3}=1 \Rightarrow \chi=1, \omega, \omega^{2} \\
\omega^{2} & \frac{-1-i\sqrt{3}}{2}, \\
\omega^{2} & \frac{-1+i\sqrt{3}}{2}, \\
(1+\chi+\chi^{2}) & = (\chi-\omega)(\chi-\omega^{2}), \\
\omega^{3} & = 1 \\
\overline{\omega} & = \omega^{2}
\end{array}$$

Z=
$$\alpha$$
+ib= π ($\cos \alpha$ +isin α)= π e

where $\pi = |z|$, $\alpha = \tan^{-1}(\frac{b}{a})$
 $mz = 20 \text{ km}\pi + i\alpha$

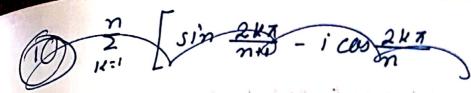
$$Z = \cos\theta + i\sin\theta = e^{i\theta}$$

$$TT \left(\cos\theta + i\sin\theta \right) = TT e^{i\theta}$$

$$TT \left(\cos\theta + i\sin\theta \right) = \cot\theta$$

$$TT = \cos\theta$$

$$TT$$



(coso + isin 0) = cos(no) + isin(no) : proper (1): (8.16. of

For
$$Z^n = 1$$
, the noot of the equit and
$$Z = \cos\left(\frac{2\pi\pi}{n}\right) + i\sin\left(\frac{2\pi\pi}{n}\right) \qquad \pi = 0, 1, 2, ..., (n-1)$$

$$= e^{i\frac{2\pi\pi}{n}}$$

2 met + mit . (8 + 4) met

1 = : may pans (2) (A 13) . Corrected 2 1

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