INDIAN SCHOOL NIZWA

MATHEMATICS
CH: 5 – COMPLEX NUMBERS – WS 2

Name: _____ Date: 30/05/24 Class: XI Sec: A

1.Find the multiplicative inverse of $\left(2+\sqrt{3i}\right)^2$.

2.Find the smallest positive integer n such that $\frac{(1+i)^n}{(1-i)^{n-2}}$ $is\ a\ real\ number$.

3.If $z_1 = 2 - I$, $z_2 = 1 + i$, find $\left|\frac{z1+z2+1}{z1-z2+i}\right|$.

4. Express in a+ib form : $\left[\left(\frac{1}{3}+\frac{7}{3}i\right)+\left(4+\frac{1}{3}i\right)\right]-\left(\frac{-4}{3}+i\right)$

5.Find x if $|1-i|^x = 2^x$

6.Express $\frac{2+6\sqrt{3}i}{5+\sqrt{3}i}$ in polar form.

7. If $z-1+cos\theta+isin\theta, find\ |z|$.

8.If $a+ib=\frac{c+i}{c-i}, prove\ that\ a^2+b^2=1\ and\ b=\frac{2ac}{c^2-1}$.

9.Find x and y for which the complex numbers $-3+ix^2y\ and\ x^2+y+4i\ are\ conjugate\ of\ each\ other$.

10.Prove that $(x+1+i)\big(x+1-i(x-1+i)\big)(x-1-i)=x^2+4$.

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