

COMPLEX NUMBER

Answer each of the following in one word or one sentence or as per exact requirement of the question :

1. Write the values of the square root of i .
2. Write the values of the square root of $-i$.
3. If $x + iy = \sqrt{(a+ib)/(c+id)}$, then write the value of $(x^2 + y^2)^2$.
4. If $\pi < \theta < 2\pi$ and $z = 1 + \cos \theta + i \sin \theta$, then write the value of $|z|$.
5. If n is any positive integer, write the value of $(i^{(4n+1)} - i^{(4n-1)})/2$.
6. Write the value of $(i^{592} + i^{590} + i^{588} + i^{586} + i^{584}) / (i^{582} + i^{580} + i^{578} + i^{576} + i^{574})$.
7. Write $1 - i$ in polar form.
8. Write $-1 + i\sqrt{3}$ in polar form.
9. Write the argument of $-i$. [NCERT]
10. Write the least positive integral value of n for which $((1+i)/(1-i))^n$ is real.
11. Find the principal argument of $(1+i\sqrt{3})^2$.
12. Find z , if $|z| = 4$ and $\arg(z) = 5\pi/6$.
13. If $|z-5i| = |z+5i|$, then find the locus of z .
14. If $(a^2+1)^2/(2a-i) = x+iy$, find the value of $x^2 + y^2$.

LOYAL EDUCATION MATHEMATICS

Result Oriented

(DAILY PRACTICE PAPER)

[CLASS XI]

15. Write the value of $\sqrt{-25} \times \sqrt{-9}$.
16. Write the sum of the series $i + i^2 + i^3 + \dots$ upto 1000 terms.
17. Write the value of $\arg(z) + \arg(\bar{z})$.
18. If $|z + 4| \leq 3$, then find the greatest and least values of $|z + 1|$.
19. For any two complex numbers z_1 and z_2 and any two real numbers a, b , find the value of $|az_1 - bz_2|^2 + |az_2 + bz_1|^2$.
20. Write the conjugate of $(2-i)/(1-2i)^2$.
21. If $n \in \mathbb{N}$, then find the value of $i^n + i^{n+1} + i^{n+2} + i^{n+3}$.
22. Find the real value of a for which $3i^3 - 2ai^2 + (1-a)i + 5$ is real.
23. If $|z| = 2$ and $\arg(z) = \pi/4$, find z .
24. Write the argument of $(1+\sqrt{3})(1+i)(\cos\theta + i\sin\theta)$.
