INDIAN SCHOOL NIZWA

MATHEMATICS

CH: 5 – COMPLEX NUMBERS – WS 1

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

1.Express $[i^{18} + i^{-25}]^3 in\ the\ form\ x + iy.$

2.Find $Im\left(\frac{1}{z1\overline{z2}}\right)\ if\ z1 = 2 - i\ and\ z2 = 1 + i.$

3. Find x and y if $\frac{(1+i)^2}{2-i} = x + iy.$

4. If $\left(\frac{1-i}{1+i}\right)^{100} = a + ib, find\ a\ and\ b.$

5.Simplify : $(1 + i)^4 \times \left(1 + \frac{1}{i}\right)^4.$

6.If $(x + iy)^3 = u + iv, show\ that\ \frac{u}{x} + \frac{v}{y} = 4(x^2 - y^2).$

7.If $z = 2 - 3i, find\ z^2 - 4z + 13.$

8.Find x and y if $\frac{1+2i+3i^2}{1-2i+3i^2} = x + iy.$

9.Find x and y if $\frac{i^5+i^6+i^7+i^8+i^9}{1+i} = x + iy.$

10.Evaluate $(1 + i)^6.$

11.If $x + iy = \frac{a+ib}{a-ib}, prove\ that\ x^2 + y^2 = 1.$

12.Simplify : $\frac{3+2i}{2-3i} + \frac{3-2i}{2+3i}.$

13.If $\frac{x-1}{3+i} + \frac{y-1}{3-i} = i, find\ x\ and\ y.$

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