

Worksheet: Complex Numbers and Quadratic Equations

ISC · Class 11 · Mathematics · 10 questions · 33 marks

Name: _____

Date: _____

Score: _____ / 33

Q1. Evaluate i^{33} . [2 marks]

Q2. Express $(2+3i) + (4-5i)$ in the form $a+ib$. [2 marks]

Q3. Find the modulus and conjugate of $z = -5 + 12i$. [2 marks]

Q4. Evaluate $\sqrt{-16} \cdot \sqrt{-25}$, showing why the naive $\sqrt{a} \cdot \sqrt{b} = \sqrt{ab}$ rule cannot be used directly. [3 marks]

Q5. Express $(2+i)/(3-4i)$ in the form $a+ib$. [4 marks]

Q6. Find the multiplicative inverse of $3 + 4i$. [3 marks]

Q7. Plot $z = 3-4i$ on the Argand plane and find its distance from the point representing $\bar{z}$. [3 marks]

Q8. If $z_1 = 1+2i$ and $z_2 = 3-i$, verify that the conjugate of $z_1 z_2$ equals (conjugate of z_1)(conjugate of z_2). [5 marks]

Q9. Find the value of $i + i^2 + i^3 + \dots + i^{40}$. [4 marks]

Q10. If $(x+iy)(2-3i) = 4+i$, find the real values of x and y . [5 marks]
