Worksheet: Complex Numbers and Quadratic Equations

Maharashtra State Board · 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) . sqrt(-25), showing why the naive sqrt(a).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 z-bar. *[3 marks]*

Q8. If z1 = 1+2i and z2 = 3-i, verify that the conjugate of z1 z2 equals (conjugate of z1)(conjugate of z2). *[5 marks]*

Q9. Find the value of i + i^2 + i^3 + ... + i^40. *[4 marks]*

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