Unit 4: Complex Numbers and Rational Exponents

ADVANCED · SET 2

Name: _____ Date: _____

Show all work. Give each answer in exact, simplest form (integer, fraction, or a+bi as needed); reject any extraneous roots.

1. Evaluate 32^(-3/5).

Answer: _____

2. Evaluate (27/125)^(-2/3).

Answer: _____

3. Multiply and simplify: (3 - 2i)(4 + 5i).

Answer: _____

4. Simplify to the form a + bi: (4 + 7i)/(1 - 2i).

Answer: _____

5. Simplify i^47.

Answer: _____

6. Solve for x: sqrt(3x + 4) = x. Give the only valid solution.

Answer: _____

7. Solve for x: (2x - 1)^(1/3) = 3.

Answer: _____

8. Solve for x: sqrt(x + 7) = x - 5. Give the only valid solution.

Answer: _____

9. Find the modulus |z| of the product z = (3 + 4i)(1 - 2i).

Answer: _____

10. Evaluate 16^(3/4) + 81^(1/2) - 8^(2/3).

Answer: _____

11. Simplify (1 - i)^4 to the form a + bi.

Answer: _____

12. Solve for x: x^(3/4) = 27.

Answer: _____