Unit 4: Complex Numbers and Rational Exponents

ADVANCED

Name: _____ Date: _____

Simplify each expression or solve each equation. Give an exact answer; write complex numbers in a + bi form and reject any extraneous roots.

1. Evaluate 27^(4/3).

Answer: _____

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

Answer: _____

3. Simplify 64^(2/3) × 16^(-1/4).

Answer: _____

4. Evaluate 16^(3/4) + 8^(2/3).

Answer: _____

5. Multiply and simplify: (3 - 2i)(4 + 5i). Write your answer as a + bi.

Answer: _____

6. Simplify i^103.

Answer: _____

7. Simplify (2 - i)^2 + (3 + 4i). Write your answer as a + bi.

Answer: _____

8. Divide and simplify: (4 + 7i)/(2 + i). Write your answer as a + bi.

Answer: _____

9. Find the modulus |-9 + 12i|.

Answer: _____

10. Solve for x: sqrt(3x - 5) = 7.

Answer: _____

11. Solve for x, rejecting any extraneous solution: sqrt(2x + 15) = x.

Answer: _____

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

Answer: _____