

Unit 4: Complex Numbers and Rational Exponents

CONCEPT

Name: _____ Date: _____

Show each answer as a single exact value. Use i for the imaginary unit and plain-text notation (sqrt, ^, fractions like $\frac{3}{4}$).

1. Write $\sqrt{16}$ using a rational exponent, then evaluate it. Give the value.

Answer: _____

3. Evaluate $8^{2/3}$.

Answer: _____

5. Simplify i^2 . Give the value.

Answer: _____

7. Subtract the complex numbers $(5 + 7i) - (2 + 3i)$. Give the result in $a + bi$ form.

Answer: _____

9. Simplify i^4 . Give the value.

Answer: _____

11. Solve for x : $x^3 = 8$ (the real cube root). Give the value of x .

Answer: _____

2. Evaluate $27^{1/3}$.

Answer: _____

4. Write $5^{1/2}$ using radical notation (a square root). Give the expression.

Answer: _____

6. Add the complex numbers $(3 + 2i) + (1 + 4i)$. Give the result in $a + bi$ form.

Answer: _____

8. Multiply $3i \times 2i$. Give the value.

Answer: _____

10. Solve for x : $\sqrt{x} = 5$. Give the value of x .

Answer: _____

12. Evaluate $100^{1/2}$.

Answer: _____