

Unit 4: Complex Numbers and Rational Exponents

PRACTICE

Name: _____ Date: _____

Show all work and give each answer in exact, simplest form (fraction, integer, $a+bi$, or a coordinate pair as directed).

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

Answer: _____

2. Evaluate $16^{3/4}$.

Answer: _____

3. Rewrite $\sqrt{x^5}$ using a rational exponent (write your answer as $x^{(a/b)}$).

Answer: _____

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

Answer: _____

5. Simplify $\sqrt{-49}$. Write your answer in terms of i .

Answer: _____

6. Add the complex numbers: $(3 + 2i) + (5 - 6i)$.

Answer: _____

7. Subtract the complex numbers: $(7 - 3i) - (2 + 4i)$.

Answer: _____

8. Multiply: $(2 + 3i)(4 - i)$. Write your answer in the form $a + bi$.

Answer: _____

9. Simplify i^3 . Write your answer in terms of i or as a number.

Answer: _____

10. Evaluate $(5i)(3i)$ and simplify to a real number.

Answer: _____

11. Solve for x : $\sqrt{x} = 6$. (Give the value of x .)

Answer: _____

12. Solve for x : $x^3 = 64$. (Give the real value of x .)

Answer: _____