# Practice Test for Complex Numbers and Quadratic Equations Unit

**Learning Objectives:**

1. Classify numbers in the real number system.
2. Simplify square roots.
3. Simplify expressions with imaginary numbers.
4. Perform operations with complex numbers.
5. Solve quadratic equations using completing the square.
6. Solve quadratic equations using the quadratic formula.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Question #** | **Learning Objective** | **Know It** | **Feel Unsure** |  | **Right** | **Wrong** | **Simple Mistake** | **Need to Study** |
| 1 | A |  |  |  |  |  |  |  |
| 2 | B |  |  |  |  |  |  |  |
| 3 | C |  |  |  |  |  |  |  |
| 4 | C |  |  |  |  |  |  |  |
| 5 | C |  |  |  |  |  |  |  |
| 6 | C |  |  |  |  |  |  |  |
| 7 | D |  |  |  |  |  |  |  |
| 8 | D |  |  |  |  |  |  |  |
| 9 | D |  |  |  |  |  |  |  |
| 10 | E |  |  |  |  |  |  |  |
| 11 | E |  |  |  |  |  |  |  |
| 12 | F |  |  |  |  |  |  |  |

1. List the numbers systems for which each is a member: a) -4 b) 3.001 c) $\sqrt{-18}$ d)8 e)0

2. Simplify: $\sqrt{450}$

3. Find three ways to write the side length of a square with an area of 360 in2.

4. Multiply: $5\sqrt{-6}∙2\sqrt{-14}$

5. Add: $7\sqrt{-2}+3\sqrt{-18}$

6. Find $i^{34}$.

7. Solve: $\left(2+3i\right)+(-3+i)$.

8. Solve: $\left(2+3i\right)-(-3+i)$.

9. Multiply: $\left(2+3i\right)(-3+i)$.

10. Solve by completing the square: $x^{2}+6x+17=0$.

11. Solve by completing the square: $2x^{2}-8x+6=0$.

12. Solve with quadratic formula: $7x^{2}-2x+9=0.$