

Section 7.5: Complex Numbers and Solving Quadratic Equations with Complex Solutions

1. True or False: The roots and the x-intercepts of an equation are the same.
 - (a) True, and I am very confident
 - (b) True, but I am not very confident
 - (c) False, but I am not very confident
 - (d) False, and I am very confident

2. True or False: The real zeros and the x-intercepts of a polynomial equation are the same.
 - (a) True, and I am very confident
 - (b) True, but I am not very confident
 - (c) False, but I am not very confident
 - (d) False, and I am very confident

3. Evaluate: $-\sqrt{-100}$
 - (a) $-10i$
 - (b) -10
 - (c) $10i$
 - (d) 10

4. Evaluate: $\sqrt{-250}$
 - (a) $5i$
 - (b) $-5i\sqrt{10}$
 - (c) $5i\sqrt{10}$
 - (d) $-5\sqrt{10}$

5. Find i^{27} .

- (a) i
- (b) -1
- (c) $-i$
- (d) 1

6. Solve by the Square Root Method: $(2x - 6)^2 + 16 = 0$

- (a) $x = 5, 1$
- (b) $x = 5i, i$
- (c) $x = 3 + 2i, 3 - 2i$
- (d) $x = 3 + 4i, 3 - 4i$

7. Simplify: $\sqrt{-64} - \sqrt{16} + \sqrt{-4} =$

- (a) $14i$
- (b) $6i$
- (c) $-12 + 2i$
- (d) $-4 + 10i$

8. Find $(3 + \sqrt{-9}) - (5 + \sqrt{-16})$.

- (a) $-2 - \sqrt{-7}$
- (b) $-2 + 7i$
- (c) $-2 - i$
- (d) $-2 + i$

9. Find $(3 + \sqrt{-9})(5 + \sqrt{-16})$.

- (a) $27 - 27i$
- (b) $27 + 27i$
- (c) $3 - 27i$
- (d) $3 + 27i$

10. Express in the form $a + bi$, where a and b are real numbers: $\frac{4 - i}{3 + 2i}$

(a) $\frac{14}{13} - \frac{11}{13}i$

(b) $\frac{10}{13} - \frac{11}{13}i$

(c) $\frac{14}{5} - \frac{11}{5}i$

(d) $\frac{10}{5} - \frac{11}{5}i$