

Test 5

Date _____ Period _____

Solve each equation. Remember to check for extraneous solutions.

1) $4 = \sqrt{8x}$

- A) $\{-4\}$ B) $\{2\}$
C) $\{10\}$ D) $\{-5, 2\}$
E) None of these

2) $9 = \sqrt{1 - 8n}$

- A) $\{10\}$ B) $\{-8\}$
C) $\{-2\}$ D) $\{-10\}$
E) None of these

3) $\sqrt{\frac{b}{3}} = \sqrt{24 - b}$

- A) $\{-5\}$ B) $\{-18\}$
C) $\{18\}$ D) $\{5\}$
E) None of these

4) $\sqrt{11p - 1} = \sqrt{2p + 8}$

- A) $\{-10\}$ B) $\{10, -4\}$
C) $\{1\}$ D) $\{10, -7\}$
E) None of these

5) $\sqrt{6 - b} = b$

- A) $\{2, 10\}$ B) $\{2\}$
C) $\{-2\}$ D) $\{-2, -4\}$
E) None of these

6) $m = \sqrt{42 - m}$

- A) $\{-5, 6\}$
B) $\{-5, 4\}$
C) $\{6\}$
D) No solution.
E) None of these

7) $-n + \sqrt{28 - 3n} = -6$

- A) $\{1, -8\}$ B) $\{1, 9\}$
 C) $\{8\}$ D) $\{1, -9\}$
 E) None of these

Simplify.

8) $(-6 - 4i) - (-6 - 6i)$

- A) $10i$ B) $2i$
 C) $-6 + 6i$ D) $-12 + 2i$
 E) None of these

9) $(5i)(8 - 2i)$

- A) $10 + 40i$ B) $-10 + 40i$
 C) $25i$ D) $10 - 40i$
 E) None of these

10) $(-1 + 2i)^2$

- A) -4 B) $-8i$
 C) $-3 - 4i$ D) $5 - 12i$
 E) None of these

11) $\frac{8}{-8i}$

- A) $\frac{7i}{8}$ B) $\frac{11i}{8}$
 C) $\frac{5i}{8}$ D) $\frac{5i}{4}$
 E) None of these

$$12) \frac{2 - 8i}{-8 - 5i}$$

$$A) \frac{16 - 8i}{25}$$

$$C) \frac{3 + 5i}{5}$$

E) None of these

$$B) \frac{16 + 79i}{89}$$

$$D) \frac{24 + 74i}{89}$$

Find the value that completes the square and then rewrite as a perfect square.

$$13) r^2 - 40r + \underline{\hspace{1cm}}$$

$$A) 1600; (r - 20)^2$$

$$B) 144; (r + 12)^2$$

$$C) -400; (r - 20)^2$$

$$D) -20; (r - 20)^2$$

E) None of these

Solve each equation by completing the square.

$$14) x^2 - 6x + 64 = 0$$

$$A) \{6, -4\}$$

$$B) \{3 + i\sqrt{55}, 3 - i\sqrt{55}\}$$

$$C) \{-3 + \sqrt{73}, -3 - \sqrt{73}\}$$

$$D) \{6 + \sqrt{39}, 6 - \sqrt{39}\}$$

E) None of these

$$15) v^2 = -96 - 14v$$

$$A) \{-1 + i\sqrt{43}, -1 - i\sqrt{43}\}$$

$$B) \{4 + i\sqrt{37}, 4 - i\sqrt{37}\}$$

$$C) \{-7 + i\sqrt{47}, -7 - i\sqrt{47}\}$$

$$D) \{4 + i, 4 - i\}$$

E) None of these

Solve each equation with the quadratic formula.

$$16) 3x^2 - 8x - 16 = 0$$

$$A) \left\{ \frac{-9 + 3\sqrt{21}}{2}, \frac{-9 - 3\sqrt{21}}{2} \right\}$$

$$B) \left\{ 4, -\frac{4}{3} \right\}$$

$$C) \{3, -3\}$$

$$D) \{-4 + 4\sqrt{2}, -4 - 4\sqrt{2}\}$$

E) None of these

17) $v^2 + 5v - 17 = 0$

- A) $\{3, -3\}$
- B) $\left\{\frac{3 + \sqrt{249}}{8}, \frac{3 - \sqrt{249}}{8}\right\}$
- C) $\left\{\frac{3\sqrt{5}}{5}, -\frac{3\sqrt{5}}{5}\right\}$
- D) $\left\{\frac{9 + \sqrt{337}}{8}, \frac{9 - \sqrt{337}}{8}\right\}$
- E) None of these

18) $12x^2 + 3x + 4 = 0$

- A) $\left\{\frac{-3 + \sqrt{201}}{24}, \frac{-3 - \sqrt{201}}{24}\right\}$
- B) $\left\{\frac{3 + \sqrt{201}}{24}, \frac{3 - \sqrt{201}}{24}\right\}$
- C) $\left\{\frac{-3 + i\sqrt{183}}{24}, \frac{-3 - i\sqrt{183}}{24}\right\}$
- D) $\left\{\frac{3 + i\sqrt{183}}{24}, \frac{3 - i\sqrt{183}}{24}\right\}$
- E) None of these

19) $5n^2 - 8n - 9 = 12$

- A) $\{4 + \sqrt{37}, 4 - \sqrt{37}\}$
- B) $\left\{3, -\frac{7}{5}\right\}$
- C) $\{-4 + \sqrt{37}, -4 - \sqrt{37}\}$
- D) $\left\{\frac{7}{5}, -3\right\}$
- E) None of these

20) $8b^2 + 1 = -8$

- A) $\left\{\frac{3 + i\sqrt{431}}{20}, \frac{3 - i\sqrt{431}}{20}\right\}$
- B) $\left\{\frac{-9 + i\sqrt{239}}{16}, \frac{-9 - i\sqrt{239}}{16}\right\}$
- C) $\left\{\frac{3i\sqrt{2}}{4}, -\frac{3i\sqrt{2}}{4}\right\}$
- D) $\left\{\frac{i\sqrt{10}}{4}, -\frac{i\sqrt{10}}{4}\right\}$
- E) None of these