

Quadratic Formula

Find the discriminant of each quadratic equation then state the number and type of solutions.

1) $-b^2 + 2b - 12 = -4$

- A) 36; two real solutions
- B) -28; two imaginary solutions
- C) 12; two real solutions
- D) -28; two real solutions

3) $-5n^2 - 10n - 10 = -5$

- A) 0; two real solutions
- B) 0; one real solution
- C) 88; two imaginary solutions
- D) 0; two imaginary solutions

5) $-m^2 - 8m + 7 = -2$

- A) 49; two real solutions
- B) -87; two imaginary solutions
- C) 28; two real solutions
- D) 100; two real solutions

2) $3r^2 - 3r + 12 = 3$

- A) -99; one real solution
- B) -99; two imaginary solutions
- C) 117; two real solutions
- D) 72; two real solutions

4) $3p^2 - 6p - 2 = -5$

- A) 0; one real solution
- B) 72; two real solutions
- C) 0; two imaginary solutions
- D) 0; two real solutions

Solve each equation with the quadratic formula.

6) $m^2 - 2m = -3$

- A) $\{1, -3\}$
- B) $\{1 + i\sqrt{2}, 1 - i\sqrt{2}\}$
- C) $\left\{\frac{5}{2}, -7\right\}$
- D) $\left\{\frac{9 + \sqrt{221}}{2}, \frac{9 - \sqrt{221}}{2}\right\}$

8) $2n^2 + 3 = 0$

- A) $\left\{\frac{i\sqrt{6}}{2}, -\frac{i\sqrt{6}}{2}\right\}$
- B) $\left\{\frac{-11 + \sqrt{217}}{2}, \frac{-11 - \sqrt{217}}{2}\right\}$
- C) $\left\{\frac{-11 + \sqrt{1081}}{20}, \frac{-11 - \sqrt{1081}}{20}\right\}$
- D) $\left\{\frac{2}{5}, -\frac{3}{2}\right\}$

10) $11k^2 = 12$

- A) $\{2\sqrt{3}, -2\sqrt{3}\}$
- B) $\left\{\frac{2\sqrt{33}}{11}, -\frac{2\sqrt{33}}{11}\right\}$
- C) $\left\{\frac{-1 + i\sqrt{17}}{6}, \frac{-1 - i\sqrt{17}}{6}\right\}$
- D) $\left\{\frac{\sqrt{33}}{11}, -\frac{\sqrt{33}}{11}\right\}$

7) $9x^2 = -9$

- A) $\{3i, -3i\}$
- B) $\{1, -1\}$
- C) $\left\{\frac{i}{2}, -\frac{i}{2}\right\}$
- D) $\{i, -i\}$

9) $9b^2 = -6b + 23$

- A) $\{-3 + 4\sqrt{2}, -3 - 4\sqrt{2}\}$
- B) $\{2i, -2i\}$
- C) $\left\{\frac{-1 + 2\sqrt{6}}{3}, \frac{-1 - 2\sqrt{6}}{3}\right\}$
- D) $\left\{\frac{2i}{3}, -\frac{2i}{3}\right\}$