

1. Find the solution set of the quadratic equation $2x^2 + 5x + 3 = 0$.

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

2. What is the solution set of the quadratic equation $2x^2 - 9x + 7 = 0$?

- A) $\left\{-\frac{7}{2}, 1\right\}$ B) $\left\{\frac{7}{2}, -1\right\}$
 C) $\left\{7, -\frac{1}{2}\right\}$ D) $\left\{\frac{7}{2}, 1\right\}$
 E) $\left\{-\frac{7}{2}, \frac{1}{2}\right\}$

3. If the solution set of $ax^2 + bx + c = 0$ is $\left\{0, -\frac{b}{a}\right\}$, which of the followings is exactly true?

- A) $b = 0$ B) $\Delta = 0$ C) $c = 0$
 D) $\Delta > 0, b = 0$ E) $a \neq 0, b = 0, c = 0$

4. Which one of the following quadratic equations has no solution in real numbers?

- A) $x^2 - x - 3 = 0$ B) $-x^2 + x + 9 = 0$
 C) $x^2 - 7x + 1 = 0$ D) $x^2 + 11x + 3 = 0$
 E) $2x^2 + 3x + 15 = 0$

5. If the quadratic equation $x^2 - (2m - 1)x + 1 = 0$ has two real roots, find the interval of m .

- A) $m < -\frac{1}{4}, m > \frac{3}{2}$ B) $-\frac{1}{4} < m < \frac{3}{2}$
 C) $m \leq -\frac{1}{2}$ D) $-\frac{1}{2} \leq m \leq \frac{3}{2}$
 E) $m < -\frac{1}{2}, m > \frac{3}{2}$

6. If the quadratic equation $ax^2 - (2a - 1)x + a + 1 = 0$ has two equal roots, find the value of a .

- A) $\frac{1}{8}$ B) $\frac{1}{6}$ C) $\frac{1}{3}$ D) $\frac{1}{4}$ E) $\frac{1}{2}$

7. If (-2) is a root of $x^2 + ax + b = 0$ and $a + b = 5$, then find $a = ?$

- A) -3 B) -1 C) 1 D) 3 E) 5

8. If one of the roots of the quadratic equation $(m + 1)x^2 - 7x + (3m - 2) = 0$ is 1, find m .

- A) 0 B) 1 C) -1 D) -2 E) 2

9. If one of the roots of the quadratic equation $3x^2 + (a - b)x - 6 = 0$ is -2 , then find the other root.

- A) -3 B) -1 C) 1 D) 2 E) 3

10. Find the quadratic equation, whose sum of the roots is 8 and the product of the roots is 9.

- A) $x^2 - 4x + 3 = 0$ B) $x^2 + 4x + 3 = 0$
 C) $x^2 + 8x + 9 = 0$ D) $x^2 - 8x + 9 = 0$
 E) $x^2 - 4x + 9 = 0$

11. If roots of the equation $2x^2 + mx + 7 = 0$ are two more than the roots of the equation

$2x^2 + 9x + n = 0$, then find $m + n = ?$

- A) 20 B) 19 C) 18 D) 17 E) 16

12. x_1 and x_2 are the roots of the equation $x^2 - (m + 3)x - m^2 - 1 = 0$. If $x_1 + x_2 = 0$, find $x_1 \cdot x_2$.

- A) 8 B) -8 C) 9 D) -9 E) -10

13. If the roots of the quadratic equation $x^2 - (m - 1)x + 3m - 6 = 0$ have opposite signs, find m .

- A) $m < 2$ B) $m > 1$ C) $m < 3$
 D) $m \geq 2$ E) $m < -2$

14. If one of the roots of the quadratic equation $x^2 - 4x + m^2 - 1 = 0$ is 3 times greater than the other root, find the value of the small root.

- A) -3 B) -1 C) 0 D) 1 E) 3