

(EMC01-0001E)

If $(x - a)$ is a factor of the polynomial $x^6 - ax^5 + x^4 - ax^3 + 3x + a - 2$, then the value of a is

- A) 1
- B) $\frac{1}{2}$
- C) $\frac{1}{3}$
- D) 2

(EMC01-0002M)

The geometric mean of the roots of the equation $x^2 - 18x + 9 = 0$ is

- A) 3
- B) $3\sqrt{2}$
- C) 9
- D) $9\sqrt{2}$

(EMC01-0003M)

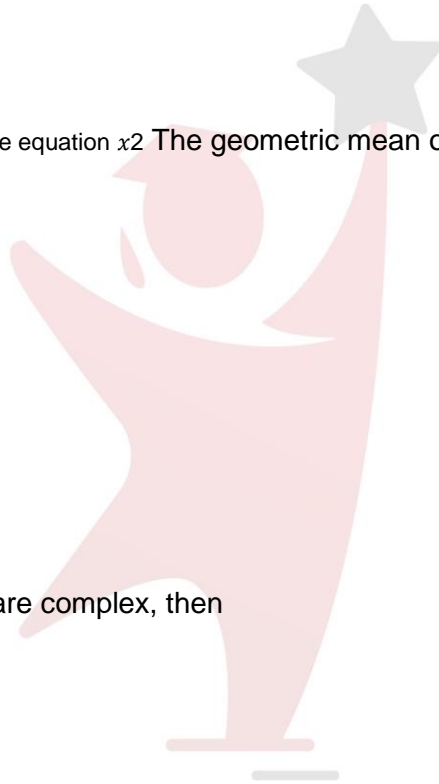
If the roots of $x^2 + ax + 9 = 0$ are complex, then

- A) $a < -6$
- B) $a < 6$
- C) $|a| < 6$
- D) $|a| > 6$

(EMC01-0004M)

The value of k for which the quadratic equation $x^2 - 2x(1 + 3k) + 7(2k + 3) = 0$ has equal roots, is

- A) 1
- B) 2
- C) 3
- D) 4



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(EMC01-0005E)

- If the product of roots of the equation $mx^2 + 6x + (2m - 1) = 0$ is -1 , then the value of m is
 - 1
 - $-\frac{1}{3}$
 - $\frac{1}{3}$
 - 1

(EMC01-0006E)

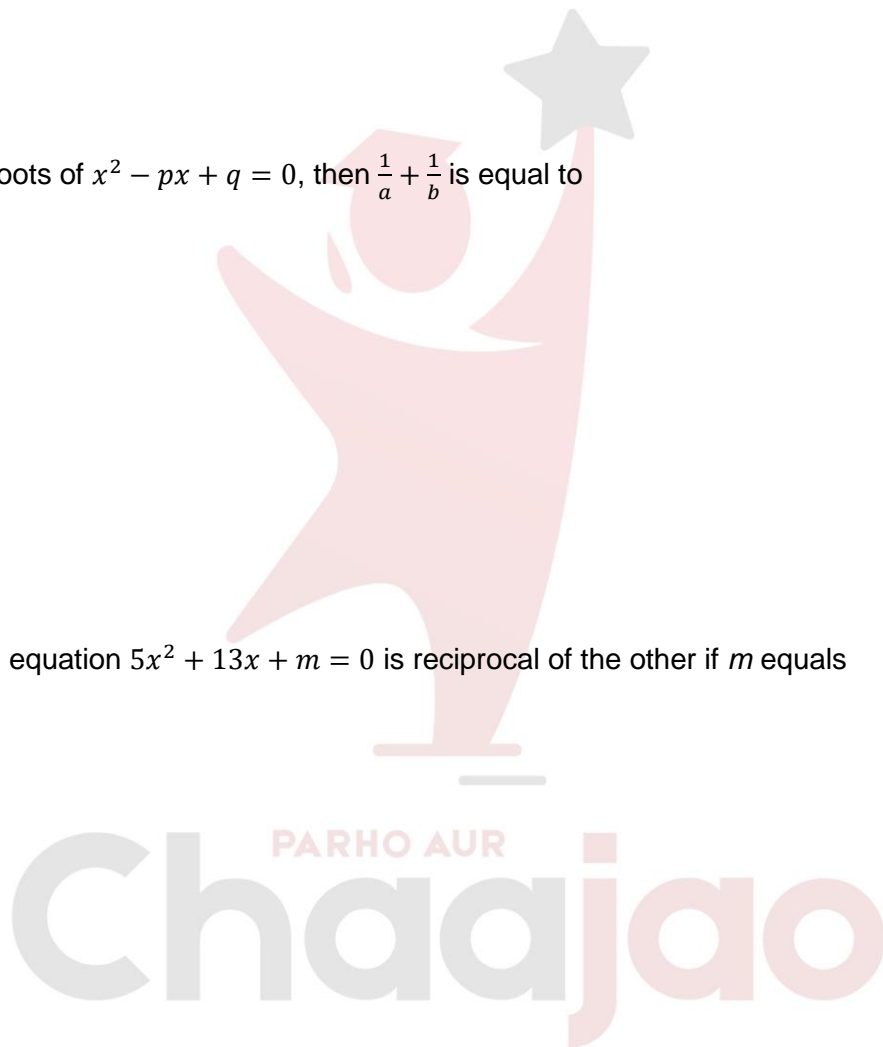
- If a and b are roots of $x^2 - px + q = 0$, then $\frac{1}{a} + \frac{1}{b}$ is equal to
 - $-\frac{p}{q}$
 - $\frac{1}{2p}$
 - $-\frac{1}{q}$
 - $\frac{p}{q}$

(EMC01-0007M)

- One root of the equation $5x^2 + 13x + m = 0$ is reciprocal of the other if m equals
 - 0
 - 5
 - $\frac{1}{6}$
 - 6

(EMC01-0008M)

- If $1 - i$ is a root of the equation $x^2 + ax + b = 0$, then b is equal to
 - 2
 - 1
 - 1
 - 2



(EMC01-0009E)

- If α and β are the roots of $4x^2 + 3x + 7 = 0$, then the value of $\frac{1}{\alpha} + \frac{1}{\beta}$ is

- A) $-\frac{3}{7}$
- B) $-\frac{3}{4}$
- C) $\frac{3}{7}$
- D) $\frac{4}{7}$

(EMC01-0010H)

- If α and β are the roots of the equation $x^2 + 2x + 4 = 0$, then $\frac{1}{\alpha^3} + \frac{1}{\beta^3}$ is equal to

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

(EMC01-0011H)

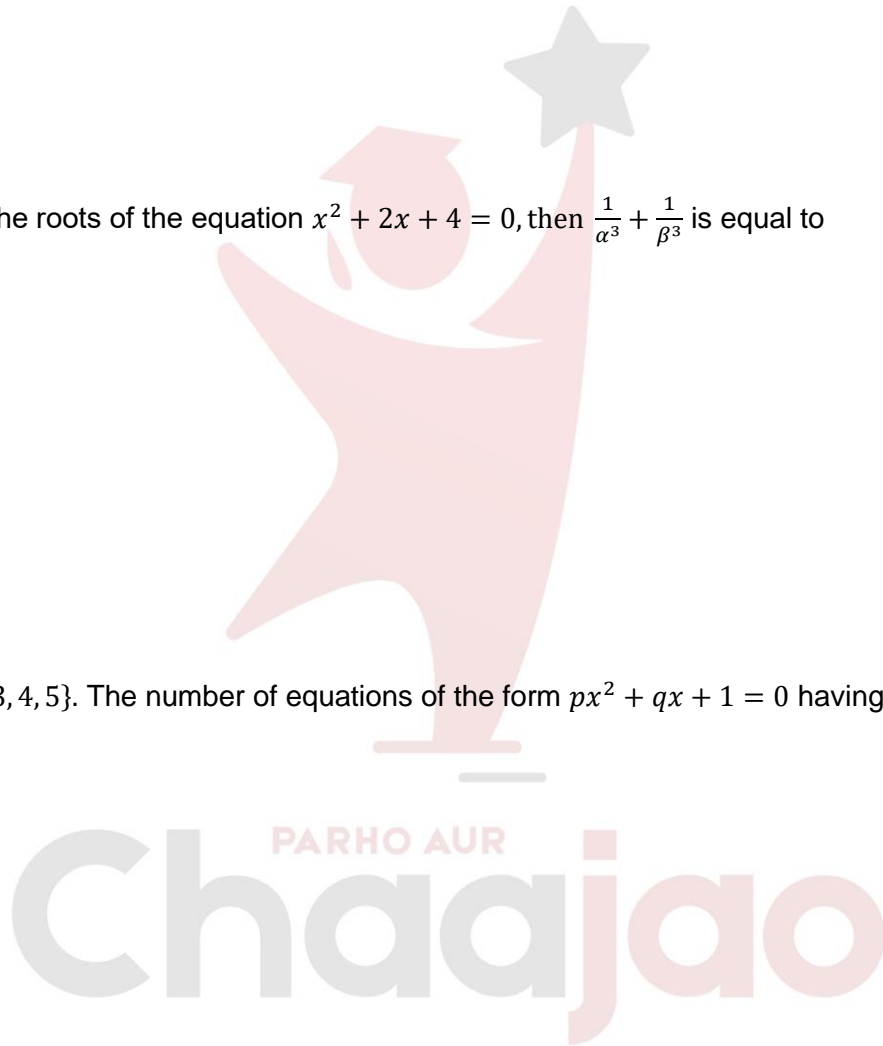
- Let $p, q \in \{1, 2, 3, 4, 5\}$. The number of equations of the form $px^2 + qx + 1 = 0$ having real roots, is

- A) 7
- B) 8
- C) 9
- D) 12

(EMC01-0012M)

- If the difference of the roots of the equation $x^2 + px + 8 = 0$ is 2, then p equals

- A) ± 2
- B) $-6, 2$
- C) $-2, 6$
- D) ± 6



(EMC01-0013M)

- If one root of the equation $x^2 + px + q = 0$ is $2 + \sqrt{3}$, then the values of p and q are
 - $-2, -\sqrt{3}$
 - $-4, 1$
 - $2, \sqrt{3}$
 - $4, -1$

(EMC01-0014M)

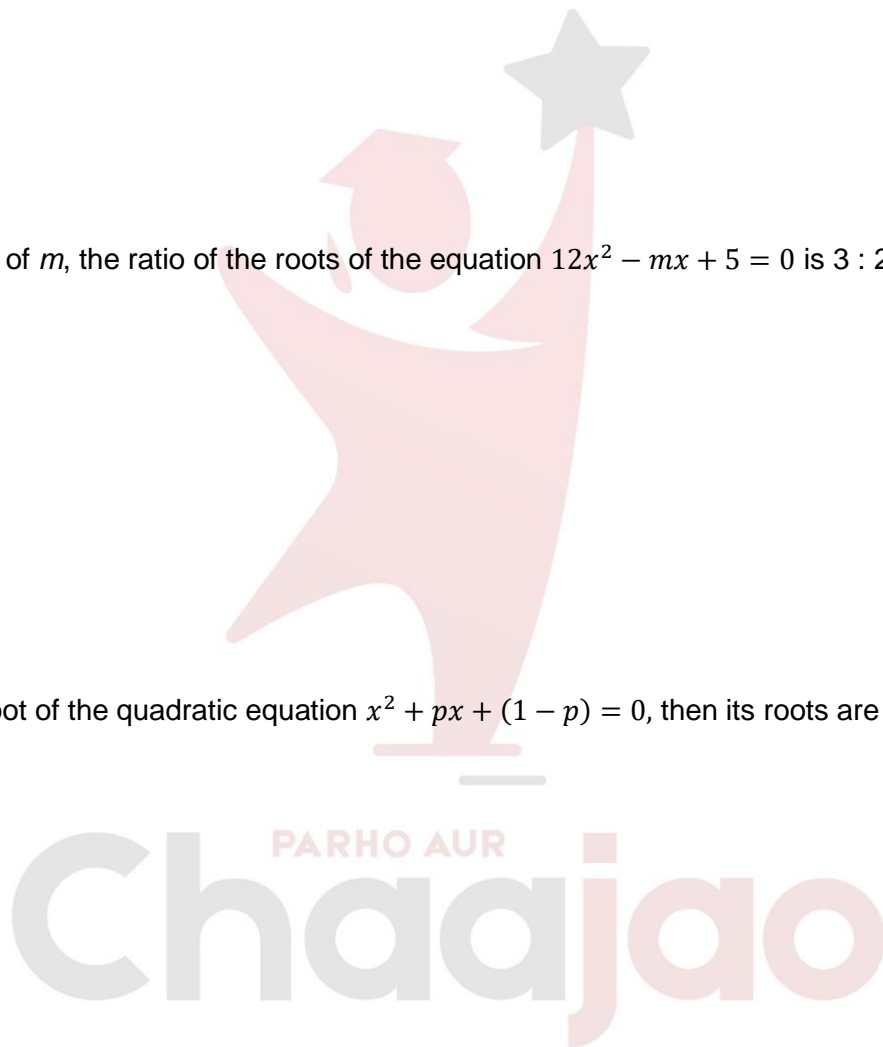
- For what value of m , the ratio of the roots of the equation $12x^2 - mx + 5 = 0$ is $3 : 2$?
 - $5\sqrt{10}$
 - $10\sqrt{5}$
 - $25\sqrt{2}$
 - $15\sqrt{5}$

(EMC01-0015M)

- If $(1 - p)$ is a root of the quadratic equation $x^2 + px + (1 - p) = 0$, then its roots are
 - $-1, 2$
 - $-1, 0$
 - $-1, 1$
 - $0, 1$

(EMC01-0016H)

- The roots of equation $2^{2x} - 10 \cdot 2^x + 16 = 0$ are
 - $1, 3$
 - $1, 8$
 - $2, 3$
 - $2, 8$



(EMC01-0017M)

- The solution set of $\sqrt{2x - 6} + \sqrt{x + 4} = 5$ is
 - A) {5}
 - B) {0, 5}
 - C) {1, 3}
 - D) {3, 5}

(EMC01-0018E)

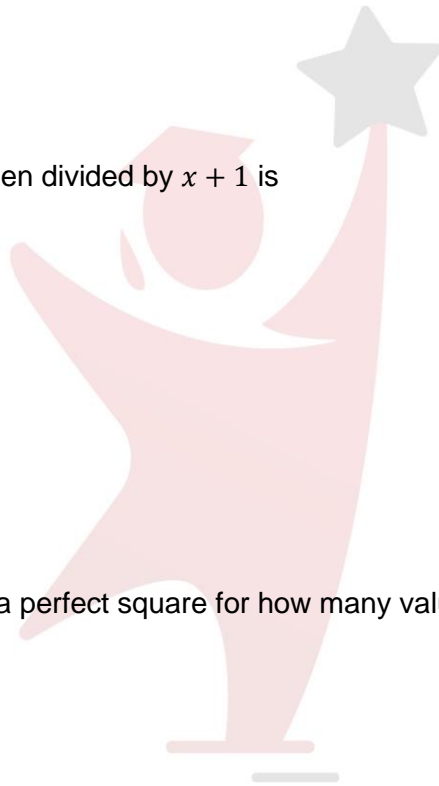
- Remainder of $x^{64} + x^{27} + 1$ when divided by $x + 1$ is
 - A) 0
 - B) 1
 - C) 2
 - D) 3

(EMC01-0019M)

- $x^2 + x + 1 + 2k(x^2 - x - 1)$ is a perfect square for how many values of k ?
 - A) 0
 - B) 1
 - C) 2
 - D) 3

(EMC01-0020E)

- Both the roots of the equation $x^2 - x - 3 = 0$ are
 - A) real and rational
 - B) real and irrational
 - C) real and equal
 - D) imaginary roots



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(EMC01-0021E)

- The value of a for which the equation $2x^2 + 2\sqrt{6}x + a = 0$ has equal roots, is
 - $\sqrt{2}$
 - $\sqrt{3}$
 - 2
 - 3

(EMC01-0022M)

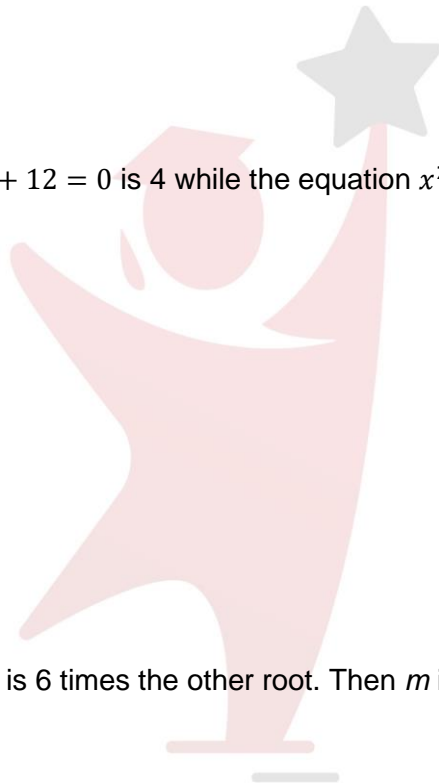
- If one root of equation $x^2 + ax + 12 = 0$ is 4 while the equation $x^2 + ax + b = 0$ has equal roots, then the value of b is
 - $\frac{4}{7}$
 - $\frac{7}{4}$
 - $\frac{4}{49}$
 - $\frac{49}{4}$

(EMC01-0023H)

- One root of $mx^2 - 14x + 8 = 0$ is 6 times the other root. Then m is equal to
 - 1
 - 2
 - 3
 - None of these

(EMC01-0024M)

- If $\alpha + \beta = 4$ and $\alpha^3 + \beta^3 = 44$, then α, β are the roots of the equation
 - $2x^2 - 7x + 6 = 0$
 - $3x^2 - 12x + 5 = 0$
 - $4x^2 + 22x + 15 = 0$
 - $9x^2 - 27x + 20 = 0$



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(EMC01-0025M)

- If $\{\alpha, \beta\}$ is the solution set of $2x^2 - 3x + 5 = 0$, then the equation with solution set $\{\alpha^2 + 1, \beta^2 + 1\}$ is
 - A) $4x^2 - 3x - 18 = 0$
 - B) $4x^2 - 3x + 18 = 0$
 - C) $4x^2 - 3x + 18 = 0$
 - D) $4x^2 + 3x + 18 = 0$



Answers Key	
1	B
2	A
3	C
4	B
5	C
6	D
7	B
8	D
9	A
10	C
11	D
12	D
13	B
14	A
15	B
16	A
17	A
18	B
19	C
20	B
21	D
22	D
23	C
24	B
25	D