(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

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

  A) $\frac{-p}{q}$
  B) $\frac{1}{2p}$
  C) $\frac{-1}{q}$
  D) $\frac{P}{q}$

(EMC01-0007M)

- One root of the equation $5x^2 + 13x + m = 0$ is reciprocal of the other if *m* equals

  A) 0
  B) 5
  C) $\frac{1}{6}$
  D) 6

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(EMC01-0008M)

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

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

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(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 $2, \text{then } p$ equals

  A) $\pm$ 2
  B) –6,2
  C) –2,6
  D) $\pm$ 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

  A) $-2, -\sqrt{3}$
  B) -4, 1
  C) 2, $\sqrt{3}$
  D) 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?

  A) $5\sqrt{10}$
  B) $10\sqrt{5}$
  C) $25\sqrt{2}$
  D) $15\sqrt{5}$

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(EMC01-0015M)

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

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

(EMC01-0016H)

- The roots of equation $2^{2x} - 10.2^x + 16 = 0$ are

  A) 1, 3
  B) 1, 8
  C) 2, 3
  D) 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

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(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

(EMC01-0021E)

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

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

  A) $\frac{4}{7}$
  B) $\frac{7}{4}$
  C) $\frac{4}{49}$
  D) $\frac{49}{4}$

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(EMC01-0023H)

- One root of $mx^2 - 14x + 8 = 0$ is 6 times the other root. Then m is equal to

  A) 1
  B) 2
  C) 3
  D) None of these

(EMC01-0024M)

- If $\alpha + \beta = 4$ and $\alpha^3 + \beta^3 = 44$, then α, β are the roots of the equation

  A) $2x^2 - 7x + 6 = 0$
  B) $3x^2 - 12x + 5 = 0$
  C) $4x^2 + 22x + 15 = 0$
  D) $9x^2 - 27x + 20 = 0$

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

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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**

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