

6. If the zeros of the polynomial  $x^2 - ax + b$  are 3 and 4, then a and b respectively equal to?

यदि बहुपद  $x^2 - ax + b$  के शून्यक 3 और 4 हैं, तो a और b किसके बराबर हैं?

[SSC CGL PRE 2022]

[A] 4, 3

[B] 12, 7

[C] 3, 4

[D] 7, 12

#

$$x^2 - ax + b = 0$$

$$\text{sum } \frac{-(-a)}{1} = a = 7$$

$$\text{product } b = 3 \times 4$$

7. What is the difference between the roots of the quadratic equation  $a^2 + 4a - 77 = 0$ ?

द्विघात समीकरण  $a^2 + 4a - 77 = 0$  के मूलों में क्या अंतर है?

[SSC CGL PRE 2022]

[A] 4

[B] 11

[C] 7

[D] 18 ✓

$$7 - (-11) = 18$$

$$-11, +7$$

$$\text{सुभा} \rightarrow -77$$

$$\text{odd} = 4$$

8. If  $\alpha$  &  $\beta$  are the roots of quadratic equation  $(5 + \sqrt{2})x^2 - (4 + \sqrt{5})x + (8 + 2\sqrt{5}) = 0$ , the find  $\frac{2\alpha\beta}{\alpha+\beta}$ ?

यदि  $\alpha$  और  $\beta$  द्विघात समीकरण  $(5 + \sqrt{2})x^2 - (4 + \sqrt{5})x + (8 + 2\sqrt{5}) = 0$  के मूल हैं, तो  $\frac{2\alpha\beta}{\alpha+\beta}$  ज्ञात करें?

[RRB Group D-2022]

[A] 4 ✓  
[C] 2

[B] 8  
[D] 7

$$= 2 \times \frac{c}{-b}$$

$$ax^2 + bx + c = 0$$

$$\alpha + \beta = -\frac{b}{a} = \frac{-\text{अज्ञा लैफ.}}{\text{अज्ञा लैफ.}}$$

$$= -2 \times \frac{c}{b}$$

$$= -2 \times \frac{(8 + 2\sqrt{5})}{-(4 + \sqrt{5})}$$

$$= 4$$



9. Which of the following is equivalent to a quadratic equation?

निम्नलिखित में से कौन-सा द्विघात समीकरण के बराबर है?

[SSC CGL PRE 2022]

[A]  ~~$x^3 - 3x^2 + 3x - 1 = (x-1)^3$~~

[B]  ~~$\frac{x}{x-1} + \frac{2x}{x-1} = 3$~~

☒ [C]  $(x^2 + 1)^2 - x^4 = 2x + 1$

[D]  ~~$\frac{(x^2 - 1)^2}{(x+1)} = x - 2$~~

$ax^2 + bx + c = 0$   
&  $a \neq 0$

10. Which of the following is not a quadratic equation?

निम्न में से कौन-सा द्विघात समीकरण नहीं है?

[RRB Group D-2022], (RRB NTPC GRADUATE LEVEL CBT-1 2025)

[A]  $m(2m + 3) = m^2 + 1$

[B]  $(y - 2)^2 + 1 = 2y - 3$

ans [C]  $x(x + 1) + 8 = (x + 2)(x - 2)$

[D]  $(m - 2)^3 = m^3 - 4$

~~$2m^2 + 3m = m^2 + 1$~~

~~$m^2 + 3m - 1 = 0$~~

~~$x^2 + x + 8 = x^2 - 4$~~

11. Which of the following is not a quadratic equation?

इनमें से कौन सा द्विघात समीकरण नहीं है?

(RRB NTPC GRADUATE LEVEL CBT-1 2025)

ans ✓ [A]  $(x-1)(x+2) = x^2 + 3$

[B]  $x^2 + 2x + 1 = 0$

[C]  $x(x-3) = 2$

[D]  $3x^2 - 5x + 2 = 0$

12. Which of the following can be expressed as a standard quadratic equation?

निम्नलिखित में से किसे एक मानक द्विघात समीकरण के रूप में व्यक्त किया जा सकता है?

[RRB Group D-2022]

[A]  $\times (2x - 1)^3 = x^2 - 3x + 2$

[B]  $\checkmark 2x^2 + 3x - 4 - 2x + 5 = 0$

[C]  $\times (x + 1)(x + 2) = x^2 - 16$

[D]  $\times (2x + 3)^2 + 4x - 5 = (2x + 1)(2x - 3)$



13. Find roots of  $5m^2 + 18m + 16 = 0$

$5m^2 + 18m + 16 = 0$  के मूल ज्ञात कीजिए।

(RRB NTPC GRADUATE LEVEL CBT-1 2025)

[A]  $-\frac{8}{5}$  and 4

[B]  $\frac{8}{5}$  and -4

[C]  $\frac{8}{5}$  and 2

[D]  $-\frac{8}{5}$  and -2

$$-\frac{8}{5}, -\frac{10}{5}$$

14. Find the roots of the quadratic equation  $5x^2 - 12x - 17 = 0$

द्विघात समीकरण  $5x^2 - 12x - 17 = 0$  के मूल ज्ञात कीजिए।

(RRB NTPC GRADUATE LEVEL CBT-1 2025)

[A]  $1, \frac{-17}{5}$

[B]  $-1, \frac{-17}{5}$

☒ [C]  $-1, \frac{17}{5}$

[D]  $1, \frac{17}{5}$

$a/b = -85$

$c/b = -12$

$\frac{+17}{5}, \frac{-5}{5}$

**15. Solution for the equation  $11a^2 + 18a + 7 = 0$  are?**

**समीकरण  $11a^2 + 18a + 7 = 0$  के लिए हल क्या हैं?**

**(RRB NTPC GRADUATE LEVEL CBT-1 2025)**

[A] -1, 2

[B] -1, -3

[C] -2, -7/11

[D] -1, -7/11

16. The roots of quadratic equation  $3x^2 - 2\sqrt{6}x + 2 = 0$ :  
द्विघात समीकरण  $3x^2 - 2\sqrt{6}x + 2 = 0$  के मूल:

$$(\sqrt{3}x - \sqrt{2})^2 = 0$$

(RRB NTPC GRADUATE LEVEL CBT-1 2025)

[A]  $\frac{\sqrt{1}}{\sqrt{3}}, \frac{\sqrt{1}}{\sqrt{3}}$

[B]  $\frac{\sqrt{5}}{\sqrt{3}}, \frac{\sqrt{5}}{\sqrt{3}}$

~~[C]  $\frac{\sqrt{2}}{\sqrt{3}}, \frac{\sqrt{2}}{\sqrt{3}}$~~

[D]  $\frac{\sqrt{5}}{\sqrt{3}}, \frac{\sqrt{2}}{\sqrt{3}}$

$$\text{सुग} = 6$$

$$\text{add} = -2\sqrt{6}$$

$$\div \sqrt{3}$$

$$+\frac{\sqrt{6}}{3}, +\frac{\sqrt{6}}{3}$$

$$\frac{\sqrt{2}}{\sqrt{3}}, \frac{\sqrt{2}}{\sqrt{3}}$$

17. Find the roots of  $3a^2x^2 + 8abx + 4b^2 = 0$ .

$3a^2x^2 + 8abx + 4b^2 = 0$  के मूल ज्ञात कीजिए।

[RRB Group D-2022]

[A]  $-\frac{3b}{a}$  and  $-\frac{2b}{a}$

[C]  $-\frac{2b}{a}$  and  $-\frac{3b}{2a}$

[B]  $-\frac{2b}{3a}$  and  $-2b$

✓ [D]  $-\frac{2b}{a}$  and  $-\frac{2b}{3a}$

x  $12a^2b^2$   
 $8ab = 8ab$

~~$-\frac{6ab}{3a^2}$~~ ,  ~~$-\frac{2ab}{3a^2}$~~

$-\frac{2b}{a}$ ,  $-\frac{2b}{3a}$

18. Find the roots of the quadratic equation  $x + \frac{20}{x} = 9$ .

द्विघात समीकरण  $x + \frac{20}{x} = 9$  के मूल ज्ञात कीजिए।

[RRB Group D-2022]

[A] ~~-4, -5~~

☒ [C] 4, 5

[B] ~~-3, -6~~

[D] 3, 6

$\left. \begin{array}{l} 4+5 \\ 5+4 \end{array} \right\}$

19. Find roots of  $x^2 + (2a + 3)x + (a^2 + 3a) = 0$ .

$x^2 + (2a + 3)x + (a^2 + 3a) = 0$  के मूल ज्ञात करें।

(RRB NTPC GRADUATE LEVEL CBT-1 2025)

[A]  $x = -a, -a - 3$

[B]  $x = a, a + 3$

[C]  $x = 2a, a + 3$

[D]  $x = -a, a + 3$

सुग =  $a \cdot (a + 3)$

$-a, -(a + 3)$

20. The roots of the quadratic equation  $3x^2 - 7x + 1 = 0$  are:  
द्विघात समीकरण  $3x^2 - 7x + 1 = 0$  के मूल ज्ञात कीजिए।

(RRB NTPC GRADUATE LEVEL CBT-1 2025)

[A]  $\frac{(7+\sqrt{37})}{1.5} \& \frac{(7-\sqrt{37})}{1.5}$

☒ [B]  $\frac{(7+\sqrt{37})}{6} \& \frac{(7-\sqrt{37})}{6}$

~~[C]  $\frac{(-7+\sqrt{37})}{3} \& \frac{(7+\sqrt{37})}{1.5}$~~

~~[D]  $\frac{(-7+\sqrt{37})}{3} \& \frac{(7+\sqrt{37})}{1.5}$~~

$a=3$

$b=-7$

$c=1$

$m \pm \sqrt{m}$

$$\frac{7 \pm \sqrt{49 - 4 \times 3 \times 1}}{6}$$

$$\frac{7 \pm \sqrt{37}}{6}$$

21. If  $8k^6 + 15k^3 - 2 = 0$ , then the positive value of  $\left(k + \frac{1}{k}\right)$  is:

यदि  $8k^6 + 15k^3 - 2 = 0$  है, तो  $\left(k + \frac{1}{k}\right)$  का धनात्मक मान है:

(SSC CGL PRE 2022)

[A]  $2\frac{1}{2}$

[C]  $8\frac{1}{2}$

[B]  $2\frac{1}{8}$

[D]  $8\frac{1}{8}$

$ax^2 + bx + c = 0$

$8(k^3)^2 + 15(k^3) - 2 = 0$

$k = \frac{1}{2}$

$k^3 = \frac{-15 \pm \sqrt{15^2 - 4 \cdot 8 \cdot (-2)}}{2 \cdot 8}$

22. If  $12x^4 = 7x^2 - 1$ ,  $x^2 < \frac{1}{3}$ , then find  $12x^2 - 1$ ?

यदि  $12x^4 = 7x^2 - 1$ ,  $x^2 < \frac{1}{3}$  है, तो  $12x^2 - 1$  ज्ञात कीजिये?

(SSC CGL PRE 2022)

[A] 1

[C] 3

[B] 2

[D] None

$$\begin{aligned} 3 &< 4 \\ \frac{1}{3} &> \frac{1}{4} \end{aligned}$$

$$\begin{aligned} \text{गुणा} &= 12 \\ \text{कोटि} &= -7 \end{aligned}$$

$$12(x^2)^2 - 7(x^2) + 1 = 0$$

$$x^2 = +\frac{4}{12}, +\frac{3}{12}$$

$$x^2 = \frac{1}{3}, \frac{1}{4}$$

23. If  $a$  and  $b$  are positive real numbers such that  $15a^2 - 11ab - 14b^2 = 0$ , then find  $a:b$ ?  
यदि  $a$  और  $b$  धनात्मक वास्तविक संख्याएँ हैं जैसे कि  $15a^2 - 11ab - 14b^2 = 0$ , तो  $a:b$  ज्ञात करें?

(RRB NTPC 1 2021)

[A] 3:2

[C] 9:7

[B] 7:5  $\div b^2$

[D] 5:4

$$15\left(\frac{a}{b}\right)^2 - 11\left(\frac{a}{b}\right) - 14 = 0$$

$$\frac{a}{b}$$

$$\text{गुण} = -2/0$$

$$a/b = -1/1$$

$$\frac{a}{b} = +\frac{21}{15}, \quad \cancel{-\frac{10}{15}}$$
$$= \frac{7}{5}$$

24. Find the difference between the values of 'm' for which  $2m = 5\sqrt{m} - 2$ .

'm' के उन मानों के बीच अंतर ज्ञात कीजिए, जिनके लिए  $2m = 5\sqrt{m} - 2$  है।

(RRB NTPC GRADUATE LEVEL CBT-1 2026)

[A]  $\frac{8}{3}$

✓ [B]  $\frac{15}{4}$

[C]  $2\sqrt{3}$

[D]  $2\sqrt{2}$

माना  $4 - \frac{1}{4}$

$2\sqrt{m} - 5\sqrt{m} + 2 = 0$

$\sqrt{m} = +\frac{4}{2}, +\frac{1}{2}$   
 $\sqrt{m} = 2, \frac{1}{2}$

Roots  $\rightarrow \alpha, \beta$

$$(x - \alpha) \cdot (x - \beta) = 0$$

या

$$x^2 - (\alpha + \beta)x + \alpha\beta = 0$$



25. If the sum and product of the roots of a quadratic equation are 2 and -100 respectively, then which one of the following is correct?

यदि किसी द्विघात समीकरण के मूलों का योग और गुणनफल क्रमशः 2 और -100 है, तो निम्नलिखित में से कौन सा सही है?

(CDS-1 2022), (CDS-1 2024)

[A] ~~X~~ There are infinitely many such equations having different roots./ ऐसे अनगिनत समीकरण मौजूद हैं जिनके मूल भिन्न-भिन्न हैं।

[B] There is only one such equation which is  $x^2 + 2x - 100 = 0$ ./ ऐसा सिर्फ़ एक समीकरण है जो  $x^2 + 2x - 100 = 0$  है।

☒ [C] There is only one such equation which is  $x^2 - 2x - 100 = 0$ ./ ऐसा सिर्फ़ एक समीकरण है जो  $x^2 - 2x - 100 = 0$  है।

[D] ~~X~~ There is no such equation./ ऐसा कोई समीकरण नहीं है।

$$x^2 - 2x - 100 = 0$$

26. If sum and product of the roots of a quadratic equation are  $(4-3\sqrt{2})$  and  $-28$ , respectively, then find the quadratic equation.

यदि द्विघात समीकरण के मूलों का योगफल और गुणनफल क्रमशः  $(4-3\sqrt{2})$  और  $-28$  है, तो द्विघात समीकरण ज्ञात कीजिए।

[RRB Technician Grade -1 2024], (RRB NTPC GRADUATE LEVEL CBT-1 2025)

[A]  $x^2 - (4 + 3\sqrt{2})x + 28 = 0$

[B]  $x^2 + (4 + 3\sqrt{2})x + 28 = 0$

[C]  $x^2 + (4 - 3\sqrt{2})x - 28 = 0$

[D]  $x^2 - (4 - 3\sqrt{2})x - 28 = 0$

**27. The quadratic equation whose roots are 9 and 11 is:**  
वह द्विघात समीकरण ज्ञात कीजिए, जिसके मूल 9 और 11 हैं।

**[RRB Technician Grade -1 2024]**

☒ [A]  $x^2 - 20x + 99 = 0$

[B]  $x^2 + 20x + 100 = 0$

[C]  $x^2 - 20x + 98 = 0$

[D]  $x^2 + 20x - 99 = 0$

$$x^2 - (9+11)x + 9 \times 11 = 0$$

28. Two roots of a quadratic equation  $x = \frac{1}{7}$  &  $x = -\frac{1}{8}$  are given. The equation can be written as?

द्विघात समीकरण  $x = \frac{1}{7}$  &  $x = -\frac{1}{8}$  के दो मूल दिए गए हैं। समीकरण को इस प्रकार लिखा जा सकता है?

[RRB Technician Grade -1 2024]

[A]  $(7x + 1)(8x + 1) = 0$

[B]  $(7x - 1)(8x - 1) = 0$

[C]  $(7x + 1)(8x - 1) = 0$

☒ [D]  $(7x - 1)(8x + 1) = 0$

$$\left(x - \frac{1}{7}\right)\left(x + \frac{1}{8}\right) = 0$$

$$(7x - 1)(8x + 1) = 0$$

29. The quadratic equation whose roots are  $\frac{1}{\sqrt{2}}$  and  $\frac{1}{\sqrt{2}}$  is:  
वह द्विघात समीकरण क्या है, जिनके मूल  $\frac{1}{\sqrt{2}}$  और  $\frac{1}{\sqrt{2}}$  हैं?

(RRB JE 2025)

[A]  $2x^2 - (2\sqrt{2})x + 1 = 0$

[B]  $3x^2 - (2\sqrt{2})x + 1 = 0$

[C]  $2x^2 - (4\sqrt{2})x + 1 = 0$

[D]  $2x^2 + (2\sqrt{5})x + 1 = 0$

$$\left(x - \frac{1}{\sqrt{2}}\right)^2 = 0$$

$$\left(\sqrt{2}x - 1\right)^2 = 0$$

$$x^2 - 6x + 9 = 0$$

$$(x - 3)^2 = 0$$

$$x = 3$$

30. Which of the following is the quadratic equation whose factors are  $\frac{7}{3}$  and  $\frac{12}{5}$ ?  
निम्न में से कौन-सा वह द्विघात समीकरण है, जिसके  $\frac{7}{3}$  और  $\frac{12}{5}$  हैं?

[RRB Group D-2022]

[A]  ~~$15x^2 - 70x + 84 = 0$~~  [B]  ~~$15x^2 - 72x + 84 = 0$~~

[C]  ~~$x^2 - 71x + 84 = 0$~~  [D]  $15x^2 - 71x + 84 = 0$

$\times 15$

$$x^2 - \frac{71}{15}x + \frac{84}{15} = 0$$

31. Find the equation whose roots are  $(a + \sqrt{b})$  &  $(a - \sqrt{b})$ ?  
वह समीकरण ज्ञात कीजिए जिसके मूल  $(a + \sqrt{b})$  &  $(a - \sqrt{b})$  हैं?

[RRB Technician Grade -1 2024]

[A]  $x^2 + 2ax - (a^2 - b) = 0$

[B]  $x^2 - 2ax + (a^2 - b) = 0$

[C]  $x^2 - ax + (a^2 - b^2) = 0$

[D]  $x^2 + ax - (a^2 - b) = 0$

32. Which of the following is the quadratic equation whose terms are  $2 + \sqrt{3}$  and  $4 - 2\sqrt{3}$ ?  
निम्न में से कौन-सा वह द्विघात समीकरण है, जिसके  $2 + \sqrt{3}$  और  $4 - 2\sqrt{3}$  हैं?

[RRB Group - D 2022]

[A]  $x^2 - (12 - \sqrt{3})x + 2 = 0$

[B]  $x^2 - (6 - \sqrt{3})x + 2 = 0$

[C]  $2x^2 - (6 - \sqrt{3})x + 2 = 0$

[D]  $3x^2 - (6 - \sqrt{3})x + 2 = 0$

$$x^2 - (6 - \sqrt{3})x + 2 = 0$$

33. If root of the equation  $ax^2 + bx + c = 0$  (where  $a, b$  and  $c$  are rational) is  $5 + 3\sqrt{3}$  then what is the value of  $\frac{a^2 + b^2 + c^2}{a + b + c}$ ?

यदि  $\dot{a}x^2 + \dot{b}x + \dot{c} = 0$  समीकरण) जहां  $a, b$  तथा  $c$  परिमेय संख्याएं हैं (का मूल  $5 + 3\sqrt{3}$  हो, तो  $\frac{a^2 + b^2 + c^2}{a + b + c}$  का मान क्या होगा?

[SSC CGL MAINS 2017]

[A]  $\frac{35}{3}$

$\frac{1+100+4}{-11}$

[B]  $\frac{37}{3}$

~~[C]  $\frac{-105}{11}$~~

[D]  $\frac{-105}{13}$

$1 \cdot x^2 - 10x - 2 = 0$

$a = 1$

$b = -10$

$c = -2$

$5 + 3\sqrt{3}$

$5 - 3\sqrt{3}$

Sum = 10

Product =  $5^2 - (3\sqrt{3})^2 = -2$



~~X~~

d✓  
β?



34. If one of the roots of the equation  $x^2 - 19x + 88 = 0$  is 8, then find the other root?

यदि समीकरण  $x^2 - 19x + 88 = 0$  का एक मूल 8 है, तो दूसरा मूल ज्ञात करें?

[SSC CGL PRE 2017]

[A] 13

[B] 11

[C] 17

[D] 12

$$8 \times \alpha = 88$$

$$\alpha = 11$$

35. If 6 is a solution  $2x^2 + 22x + k = 0$ , where  $k$  is a constant, what is the other solution?

यदि समीकरण  $2x^2 + 22x + k = 0$  एक हल 6 हो तो, समीकरणका दूसरा हल क्या होगा?

[SSC CGL PRE 2018]

[A] 15

[B] 5

[C] -17 ✓

[D] -11

$$6 + \alpha = -\frac{22}{2}$$

$$\alpha = -17$$

36. If  $\alpha$  is a root of the equation  $2x(2x+1)=1$ , then the other root is:  
यदि  $\alpha$  समीकरण  $2x(2x+1)=1$  का एक मूल है, तो दूसरा मूल क्या होगा?  
(RRB NTPC GRADUATE LEVEL CBT-1 2026)

~~[A]~~  $-\alpha(\alpha+1)$

[B]  $2\alpha(\alpha-1)$

~~[C]~~  $-\frac{1}{4\alpha}$

[D]  $3\alpha(\alpha+1)$

$$4x^2 + 2x - 1 = 0$$

$$\alpha \times ? = \frac{-1}{4}$$

$$? = \frac{-1}{4\alpha}$$

37. If one of the zeros of the quadratic polynomial  $(k - 1)x^2 + kx + 1$  is  $-3$ , then the value of  $k$ ?

यदि द्विघात बहुपद  $(k - 1)x^2 + kx + 1$  के शून्यको में से एक  $-3$  है, तो  $k$  का मान क्या होगा?

[A]  $\frac{-4}{3}$

[B]  $\frac{-2}{3}$

[C]  $\frac{2}{3}$

☒ [D]  $\frac{4}{3}$

$$(k-1) \times 9 - 3k + 1 = 0$$

$$6k - 8 = 0$$

$$k = \frac{4}{3}$$