

CBSE CLASS X
Mathematics Standard (041)

QUESTION PAPER

From previous CBSE Board Exam questions

Code: FTXLMQ **Questions: 69** **Maximum Marks: 202** **Generated: 2026-06-15 13:05**

SELECTIONS USED

Source	Previous-year board
Subject	Mathematics
Lessons	Quadratic Equations
Year	2022-2026
Questions selected	69

Composition — Types: 24 Long · 20 MCQ · 14 Short · 7 Very short · 4 Case-based · 1 Assertion–reason

Q1. § 2.3 Relationship between Zeroes and Coefficients of a Polynomial § 2.4 Summary [3]

Obtain the zeroes of the polynomial $7x^2 + 18x - 9$. Hence, write a polynomial each of whose zeroes is twice the zeroes of given polynomial.

Previously asked in: 2025 30/5/1 Q27

♦ **Polynomials** 2.3 Relationship between Zeroes and Coefficients of a Polynomial 4.3 Solution of a Quadratic Equation by Factorisation

Q2. [5]

The area of a right-angled triangle is 600 cm^2 . If the base of the triangle exceeds the altitude by 10 cm, find all the three dimensions of the triangle.

Previously asked in: 2026 30/2/1 Q33(b)

♦ **Quadratic Equations** Forming and solving quadratic equations from geometric contexts (area of triangle)

Q3. § 4.1 Introduction [5]

The sum of the areas of two squares is 640 m^2 . If the difference in their perimeters is 64 m, find the sides of the two squares.

Previously asked in: 2026 30/1/1 Q33(B)

♦ **Quadratic Equations** Forming and solving quadratic equations from geometric contexts (areas and perimeters of squares)

Q4. § 4.5 Summary [1]

The ratio of the sum and product of the roots of the quadratic equation $5x^2 - 6x + 21 = 0$ is :

- A 5 : 21
- B 2 : 7
- C 21 : 5
- D 7 : 2

Previously asked in: 2024 30/5/1 Q5

♦ **Quadratic Equations** 2.3 Relationship between Zeroes and Coefficients of a Polynomial

Q5. § 4.1 Introduction

[3]

Had Aarush scored 8 more marks in a Mathematics test, out of 35 marks, 7 times these marks would have been 4 less than square of his actual marks. How many marks did he get in the test ?

Previously asked in: 2022 30/4/1 Q8(b)

♦ Quadratic Equations

Forming and Solving Quadratic Equations from Word Problems

Q6.

[4]

The difference of the squares of two numbers is 180. The square of the smaller number is 8 times the greater number. Find the two numbers.

Previously asked in: 2022 30/2/1 Q12(b)

♦ Quadratic Equations

Formulating and solving quadratic equations from word problems

Q7.

[3]

The sum of two numbers is 15. If the sum of their reciprocals is $\frac{3}{10}$, find the two numbers.

Previously asked in: 2023 30/6/1 Q29(A)

♦ Quadratic Equations

Forming and solving quadratic equations from word problems (sum and reciprocals)

Q8.

[5]

A person on a tour has ₹ 4,200 for expenses. If he extends his tour for 3 days, he has to cut down his daily expenses by ₹ 70. Find the original duration of the tour.

Previously asked in: 2026 30/2/1 Q33(a)

♦ Quadratic Equations

Word problems leading to quadratic equations

Q9.

[5]

A faster train takes one hour less than a slower train for a journey of 200 km. If the speed of the slower train is 10 km/hr less than that of the faster train, find the speeds of the two trains.

Previously asked in: 2026 30/1/1 Q33(A)

♦ Quadratic Equations

Word Problems on Quadratic Equations (Speed, Distance, Time)

Q10.

[5]

Two pipes together can fill a tank in $\frac{15}{8}$ hours. The pipe with larger diameter takes 2 hours less than the pipe with smaller diameter to fill the tank separately. Find the time in which each pipe can fill the tank separately.

Previously asked in: 2023 30/5/1 Q34 (OR-2)

♦ Quadratic Equations

Word Problems leading to Quadratic Equations (Pipes and Cisterns)

Q11.

[5]

A train travels at a certain average speed for a distance of 54 km and then travels a distance of 63 km at an average speed of 6 km/h more than the first speed. If it takes 3 hours to complete the journey, what was its first average speed ?

Previously asked in: 2023 30/5/1 Q34 (OR-1)

♦ Quadratic Equations

Forming and solving quadratic equations from word problems (speed/distance/time)

Q12.

[5]

A train travels a distance of 90 km at a constant speed. Had the speed been 15 km/h more, it would have taken 30 minutes less for the journey. Find the original speed of the train.

Previously asked in: 2024 30/4/1 Q34(a) (OR-1)

♦ Quadratic Equations

Word Problems leading to Quadratic Equations (Speed, Distance, Time)

Q13.**[5]**

The denominator of a fraction is one more than twice the numerator. If the sum of the fraction and its reciprocal is $2\frac{16}{21}$, find the fraction.

Previously asked in: 2024 30/3/1 Q32(b) (OR-2)

♦ Quadratic Equations

Forming and Solving Quadratic Equations from Word Problems (Fractions)

Q14.**[5]**

In a flight of 2800 km, an aircraft was slowed down due to bad weather. Its average speed is reduced by 100 km/h and by doing so, the time of flight is increased by 30 minutes. Find the original duration of the flight.

Previously asked in: 2024 30/3/1 Q32(a) (OR-1)

♦ Quadratic Equations

Word Problems leading to Quadratic Equations (Speed, Distance, Time)

Q15.**[3]**

In a 2-digit number, the digit at the unit's place is 5 less than the digit at the ten's place. The product of the digits is 36. Find the number.

Previously asked in: 2024 30/2/1 Q31

♦ Quadratic Equations

Forming and Solving Quadratic Equations from Word Problems (Digit Problems)

Q16.**[5]**

A train travels a distance of 480 km at a uniform speed. If the speed had been 8 km/h less, then it would have taken 3 hours more to cover the same distance. Find the speed of the train.

Previously asked in: 2025 30/1/1 Q34 (OR-2)

♦ Quadratic Equations

Word Problems leading to Quadratic Equations (Speed-Distance-Time)

Q17.**[5]**

A person on tour has ₹5,400 for his expenses. If he extends his tour by 5 days, he has to cut down his daily expenses by ₹180. Find the original duration of the tour and daily expense.

Previously asked in: 2026 30/4/1 Q32 (OR-1)

♦ Quadratic Equations

Word problems leading to quadratic equations

Q18. § 4.1 Introduction**[5]**

The sides of a right triangle are such that the longest side is 4 m more than the shortest side and the third side is 2 m less than the longest side. Find the length of each side of the triangle. Also, find the difference between the numerical values of the area and the perimeter of the given triangle.

Previously asked in: 2025 30/4/1 Q32(A)

♦ Quadratic Equations

Application of Pythagorean theorem to quadratic equations

Forming and solving quadratic equations from geometric/word problems

Q19.**[2]**

The product of Rehan's age (in years) 5 years ago and his age 7 years from now, is one more than twice his present age. Find his present age.

Previously asked in: 2022 30/1/1 Q5

♦ Quadratic Equations

Forming and Solving a Quadratic Equation from a Word Problem (Age Problem)

Q20.**[5]**

The time taken by a person to travel an upward distance of 150 km was $2\frac{1}{2}$ hours more than the time taken in the downward return journey. If he returned at a speed of 10 km/h more than the speed while going up, find the speeds in each direction.

Previously asked in: 2025 30/2/1 Q33 (OR-2)

♦ Quadratic Equations

Forming and Solving Quadratic Equations from Speed-Distance-Time Problems

Q21.

§ 4.1 Introduction

[5]

The sum of the areas of two squares is 52 cm² and difference of their perimeters is 8 cm. Find the lengths of the sides of the two squares.

Previously asked in: 2025 30/2/1 Q33 (OR-1)

♦ Quadratic Equations

Forming and solving a pair of quadratic equations from geometric conditions (sum of areas and difference of perimeters of squares)

Q22.

§ 4.1 Introduction

[5]

The perimeter of a right triangle is 60 cm and its hypotenuse is 25 cm. Find the lengths of other two sides of the triangle.

Previously asked in: 2025 30/1/1 Q34 (OR-1)

♦ Quadratic Equations

Forming and solving quadratic equations from geometric conditions (right triangle sides)

Q23.

§ 4.1 Introduction

[5]

There is a circular park of diameter 65 m as shown in the following figure, where AB is a diameter. An entry gate is to be constructed at a point P on the boundary of the park such that distance of P from A is 35 m more than the distance of P from B. Find distance of point P from A and B respectively.

Previously asked in: 2025 30/6/1 Q32(a)

♦ Quadratic Equations

Angle in a semicircle (angle in a semicircle is 90°) and Pythagoras theorem application

Forming and solving quadratic equations from geometric conditions (right triangle sides)

Q24.

§ 4.1 Introduction

[4]

A rectangular floor area can be completely tiled with 200 square tiles. If the side length of each tile is increased by 1 unit, it would take only 128 tiles to cover the floor.

Based on the above information, answer the following questions :

- (i) Assuming the original length of each side of a tile be x units, make a quadratic equation from the above information. [1]
- (ii) Write the corresponding quadratic equation in standard form. [1]
- (iii) Find the value of x , the length of side of a tile by factorisation. [2]

Previously asked in: 2024 30/1/1 Q36

♦ Quadratic Equations

Forming a quadratic equation from a real-life/word problem

Solving a quadratic equation by factorisation

Standard form of a quadratic equation

Q25. § 4.4 Nature of Roots

[1]

If the roots of equation $ax^2 + bx + c = 0$, $a \neq 0$ are real and equal, then which of the following relation is true ?

- (a) $a = \frac{b^2}{c}$
 (b) $b^2 = ac$
 (c) $ac = \frac{b^2}{4}$
 (d) $c = \frac{b^4}{a}$

Previously asked in: 2024 30/1/1 Q3

♦ Quadratic Equations

4.4 Nature of Roots

Q26. § 4.2 Quadratic Equations § 4.4 Nature of Roots § 4.5 Summary

[1]

The value of p for which roots of the quadratic equation $x^2 - px + 6 = 0$ are rational, is

- (A) 1
 (B) -5
 (C) 25
 (D) 5

Previously asked in: 2026 30/5/1 Q9

♦ Quadratic Equations

4.4 Nature of Roots

Q27. § 4.4 Nature of Roots

[1]

The value of k for which the equation $kx^2 - 6x - 4 = 0$ has real and equal roots, is

- (A) $\frac{9}{4}$
 (B) -4
 (C) $-\frac{9}{4}$
 (D) -2

Previously asked in: 2026 30/5/1 Q1

♦ Quadratic Equations

4.4 Nature of Roots

Q28. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots

[3]

Find the value of 'p' for which the quadratic equation $p(x - 4)(x - 2) + (x - 1)^2 = 0$ has real and equal roots.

Previously asked in: 2022 30/4/1 Q8(a)

♦ Quadratic Equations

4.2 Quadratic Equations

4.4 Nature of Roots

Q29. § 4.2 Quadratic Equations § 4.4 Nature of Roots

[2]

If $x = -2$ is the common solution of quadratic equations $ax^2 + x - 3a = 0$ and $x^2 + bx + b = 0$, then find the value of a^2b .

Previously asked in: 2022 30/4/1 Q3(b)

♦ Quadratic Equations

4.2 Quadratic Equations

4.3 Solution of a Quadratic Equation by Factorisation

Q30. § 4.2 Quadratic Equations § 4.4 Nature of Roots § 4.5 Summary

[2]

If the sum of the roots of the quadratic equation $ky^2 - 11y + (k - 23) = 0$ is $\frac{13}{21}$ more than the product of the roots, then find the value of k .

Previously asked in: 2022 30/4/1 Q3(a)

♦ Quadratic Equations

4.2 Quadratic Equations

Q31. § 4.4 Nature of Roots**[2]**Solve the quadratic equation : $x^2 + 2\sqrt{2}x - 6 = 0$ for x .

Previously asked in: 2022 30/2/1 Q1

♦ Quadratic Equations

4.3 Solution of a Quadratic Equation by Factorisation

Q32. § 4.5 Summary**[3]**If α and β are roots of the quadratic equation $x^2 - 7x + 10 = 0$, find the quadratic equation whose roots are α^2 and β^2 .

Previously asked in: 2023 30/6/1 Q29(B)

♦ Quadratic Equations

4.2 Quadratic Equations

Q33. § 4.5 Summary**[1]**

In question numbers 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

Statement A (Assertion): If $5 + \sqrt{7}$ is a root of a quadratic equation with rational co-efficients, then its other root is $5 - \sqrt{7}$.

Statement R (Reason): Surd roots of a quadratic equation with rational co-efficients occur in conjugate pairs.

- A Both Assertion (A) and Reason (R) are true; and Reason (R) is the correct explanation of Assertion (A).
 B Both Assertion (A) and Reason (R) are true; but Reason (R) is not the correct explanation of Assertion (A).
 C Assertion (A) is true but Reason (R) is false.
 D Assertion (A) is false but Reason (R) is true.

Previously asked in: 2023 30/6/1 Q19

♦ Quadratic Equations

4.4 Nature of Roots

Q34. § 4.4 Nature of Roots**[1]**If the quadratic equation $ax^2 + bx + c = 0$ has two real and equal roots, then 'c' is equal to

- A $-\frac{b}{2a}$
 B $\frac{b}{2a}$
 C $-\frac{b^2}{4a}$
 D $\frac{b^2}{4a}$

Previously asked in: 2023 30/6/1 Q9

♦ Quadratic Equations

4.4 Nature of Roots

Q35. § 4.1 Introduction**[4]**

While designing the school year book, a teacher asked the student that the length and width of a particular photo is increased by x units each to double the area of the photo. The original photo is 18 cm long and 12 cm wide.

Based on the above information, answer the following questions.

- (I) Write an algebraic equation depicting the above information. [1]
 (II) Write the corresponding quadratic equation in standard form. [1]
 (III) What should be the new dimensions of the enlarged photo? [2]

Previously asked in: 2023 30/1/1 Q36

♦ Quadratic Equations

4.2 Quadratic Equations

Q36. § 4.4 Nature of Roots § 4.5 Summary

[1]

The least positive value of k , for which the quadratic equation $2x^2 + kx - 4 = 0$ has rational roots, is

- A $\pm 2\sqrt{2}$
- B 2
- C ± 2
- D $\sqrt{2}$

Previously asked in: 2023 30/1/1 Q8

♦ Quadratic Equations 4.4 Nature of Roots

Q37. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots

[5]

Find the smallest value of p for which the quadratic equation $x^2 - 2(p+1)x + p^2 = 0$ has real roots. Hence, find the roots of the equation so obtained.

Previously asked in: 2025 30/6/1 Q32(b)

♦ Quadratic Equations 4.3 Solution of a Quadratic Equation by Factorisation 4.4 Nature of Roots

Q38. § 4.4 Nature of Roots § 4.5 Summary

[1]

Which of the following quadratic equations has real and equal roots ?

- A $(x+1)^2 = 2x+1$
- B $x^2 + x = 0$
- C $x^2 - 4 = 0$
- D $x^2 + x + 1 = 0$

Previously asked in: 2025 30/6/1 Q3

♦ Quadratic Equations 4.4 Nature of Roots

Q39. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots

[5]

Find the value(s) of p for which the quadratic equation given as $(p+4)x^2 - (p+1)x + 1 = 0$ has real and equal roots. Also, find the roots of the equation(s) so obtained.

Previously asked in: 2025 30/5/1 Q32(b)

♦ Quadratic Equations 4.3 Solution of a Quadratic Equation by Factorisation 4.4 Nature of Roots

Q40. § 4.4 Nature of Roots

[1]

If $x^2 + bx + b = 0$ has two real and distinct roots, then the value of b can be

- A 0
- B 4
- C 3
- D -3

Previously asked in: 2025 30/5/1 Q5

♦ Quadratic Equations 4.4 Nature of Roots

Q41. § 4.2 Quadratic Equations § 4.5 Summary

[1]

Which of the following equations is a quadratic equation ?

A $x^2 + 1 = (x - 1)^2$

B $(x + \sqrt{x})^2 = 2x\sqrt{x}$

C $x^3 + 3x^2 = (x + 1)^3$

D $(x + 1)(x - 1) = (x + 1)^2$

Previously asked in: 2025 30/5/1 Q4

♦ Quadratic Equations 4.2 Quadratic Equations

Q42. § 4.2 Quadratic Equations § 4.4 Nature of Roots § 4.5 Summary

[5]

Express the equation $\frac{x-2}{x-3} + \frac{x-4}{x-5} = \frac{10}{3}$; ($x \neq 3, 5$) as a quadratic equation in standard form. Hence, find the roots of the equation so formed.

Previously asked in: 2025 30/4/1 Q32(B)

♦ Quadratic Equations 4.2 Quadratic Equations 4.3 Solution of a Quadratic Equation by Factorisation

Q43. § 4.4 Nature of Roots § 4.5 Summary

[1]

The value of 'a' for which $ax^2 + x + a = 0$ has equal and positive roots is :

(a) 2

(b) -2

(c) $\frac{1}{2}$

(d) $-\frac{1}{2}$

Previously asked in: 2025 30/4/1 Q3

♦ Quadratic Equations 4.4 Nature of Roots

Q44.

[3]

Find two consecutive negative integers, sum of whose squares is 481.

Previously asked in: 2026 30/3/1 Q29

♦ Quadratic Equations 4.2 Quadratic Equations

Q45. § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots § 4.5 Summary

[1]

If the roots of the quadratic equation $\sqrt{3}x^2 - kx + 2\sqrt{3} = 0$ are real and equal, then the value(s) of k is/are :

A $\pm\sqrt{24}$

B 0

C 4

D -5

Previously asked in: 2026 30/3/1 Q10

♦ Quadratic Equations 4.4 Nature of Roots

Q46. § 4.3 Solution of a Quadratic Equation by Factorisation § 4.5 Summary

[1]

The roots of the quadratic equation $(x - 1)^2 = 16$ are :

- A 5, 3
 B 4, -4
 C 5, -3
 D -5, 3

Previously asked in: 2026 30/3/1 Q1

♦ Quadratic Equations 4.3 Solution of a Quadratic Equation by Factorisation

Q47. § 4.1 Introduction

[4]

In the picture given below, one can see a rectangular in-ground swimming pool installed by a family in their backyard. There is a concrete sidewalk around the pool of width x m. The outside edges of the sidewalk measure 7 m and 12 m. The area of the pool is 36 sq. m.

Based on the above information, answer the following questions:

- (a) Based on the information given above, form a quadratic equation in terms of x . [2]
 (b) Find the width of the sidewalk around the pool. [2]

Previously asked in: 2022 30/3/1 Q13

♦ Quadratic Equations 4.2 Quadratic Equations

Q48. § 4.4 Nature of Roots

[2]

If the quadratic equation $(1 + a^2)x^2 + 2abx + (b^2 - c^2) = 0$ has equal and real roots, then prove that:

$$b^2 = c^2(1 + a^2)$$

Previously asked in: 2022 30/3/1 Q1(b) (OR-2)

♦ Quadratic Equations 4.4 Nature of Roots

Q49. § 4.4 Nature of Roots

[2]

Solve the quadratic equation for x :

$$x^2 - 2ax - (4b^2 - a^2) = 0$$

Previously asked in: 2022 30/3/1 Q1(a) (OR-1)

♦ Quadratic Equations 4.3 Solution of a Quadratic Equation by Factorisation

Q50. § 4.2 Quadratic Equations § 4.4 Nature of Roots § 4.5 Summary

[2]

Solve the following quadratic equation for x : $\sqrt{3}x^2 + 10x + 7\sqrt{3} = 0$

Previously asked in: 2022 30/1/1 Q3(b) (OR-2)

♦ Quadratic Equations 4.3 Solution of a Quadratic Equation by Factorisation

Q51. § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots

[2]

Find the value of m for which the quadratic equation $(m - 1)x^2 + 2(m - 1)x + 1 = 0$ has two real and equal roots.

Previously asked in: 2022 30/1/1 Q3(a) (OR-1)

♦ Quadratic Equations 4.4 Nature of Roots

Q52. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots**[1]**

A quadratic equation whose roots are $(2 + \sqrt{3})$ and $(2 - \sqrt{3})$ is :

- (a) $x^2 - 4x + 1 = 0$
- (b) $x^2 + 4x + 1 = 0$
- (c) $4x^2 - 3 = 0$
- (d) $x^2 - 1 = 0$

Previously asked in: 2023 30/5/1 Q5

♦ Quadratic Equations 4.2 Quadratic Equations

Q53. § 4.4 Nature of Roots**[3]**

Find the value of p for which the quadratic equation $px(x - 2) + 6 = 0$ has two equal real roots.

Previously asked in: 2023 30/4/1 Q31

♦ Quadratic Equations 4.4 Nature of Roots

Q54. § 4.4 Nature of Roots § 4.5 Summary**[2]**

Find the discriminant of the quadratic equation $4x^2 - 5 = 0$ and hence comment on the nature of roots of the equation.

Previously asked in: 2023 30/4/1 Q23(B) (OR-2)

♦ Quadratic Equations 4.4 Nature of Roots

Q55. § 4.4 Nature of Roots § 4.5 Summary**[2]**

Find the sum and product of the roots of the quadratic equation $2x^2 - 9x + 4 = 0$.

Previously asked in: 2023 30/4/1 Q23(A) (OR-1)

♦ Quadratic Equations 4.4 Nature of Roots

Q56. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.5 Summary**[1]**

The roots of the equation $x^2 + 3x - 10 = 0$ are :

- (a) 2, -5
- (b) -2, 5
- (c) 2, 5
- (d) -2, -5

Previously asked in: 2023 30/4/1 Q2

♦ Quadratic Equations 4.3 Solution of a Quadratic Equation by Factorisation

Q57. § 4.5 Summary**[1]**

Which of the following quadratic equations has sum of its roots as 4?

- (a) $2x^2 - 4x + 8 = 0$
- (b) $x^2 + 4x + 4 = 0$
- (c) $2x^2 - \frac{4}{2}x + 1 = 0$
- (d) $4x^2 - 4x + 4 = 0$

Previously asked in: 2023 30/2/1 Q1

♦ Quadratic Equations 4.2 Quadratic Equations

Q58. § 4.1 Introduction**[5]**

The age of a man is twice the square of the age of his son. Eight years hence, the age of the man will be 4 years more than three times the age of his son. Find their present ages.

Previously asked in: 2024 30/5/1 Q32(b) (OR-2)

♦ Quadratic Equations

4.2 Quadratic Equations

Q59. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.5 Summary**[5]**

Find the value of ' k ' for which the quadratic equation $(k+1)x^2 - 6(k+1)x + 3(k+9) = 0$, $k \neq -1$ has real and equal roots.

Previously asked in: 2024 30/5/1 Q32(a) (OR-1)

♦ Quadratic Equations

4.4 Nature of Roots

Q60. § 4.3 Solution of a Quadratic Equation by Factorisation § 4.5 Summary**[5]**

Find the value of ' c ' for which the quadratic equation $(c+1)x^2 - 6(c+1)x + 3(c+9) = 0$; $c \neq -1$ has real and equal roots.

Previously asked in: 2024 30/4/1 Q34(b) (OR-2)

♦ Quadratic Equations

4.4 Nature of Roots

Q61. § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots § 4.5 Summary**[1]**

If the discriminant of the quadratic equation $3x^2 - 2x + c = 0$ is 16, then the value of c is :

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

Previously asked in: 2024 30/4/1 Q4

♦ Quadratic Equations

4.4 Nature of Roots

Q62. § 4.3 Solution of a Quadratic Equation by Factorisation**[1]**

The quadratic equation $x^2 + x + 1 = 0$ has _____ roots.

- (A) real and equal
- (B) irrational
- (C) real and distinct
- (D) not-real

Previously asked in: 2024 30/2/1 Q4

♦ Quadratic Equations

4.4 Nature of Roots

Q63. § 4.1 Introduction**[4]**

A garden designer is planning a rectangular lawn that is to be surrounded by a uniform walkway. The total area of the lawn and the walkway is 360 square metres. The width of the walkway is same on all sides. The dimensions of the lawn itself are 12 metres by 10 metres.

Based on the information given above, answer the following questions:

- (i) Formulate the quadratic equation representing the total area of the lawn and the walkway, taking width of walkway = x m. [1]
- (ii) Solve the quadratic equation / find the width of the walkway or the area. [2]
- (iii) Find the perimeter of the lawn. [1]

Previously asked in: 2025 30/3/1 Q36

♦ Quadratic Equations

4.2 Quadratic Equations

Q64. § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots § 4.5 Summary**[2]**

Find the value of k for which the quadratic equation $4x^2 + kx + 1 = 0$ has real and equal roots.

Previously asked in: 2025 30/3/1 Q24 (OR-1)

♦ Quadratic Equations

4.4 Nature of Roots

Q65. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.4 Nature of Roots**[1]**

If $\frac{x+1}{x-1} + \frac{x-2}{x+2} = 0$, then the values of x are:

- A 6
- B 4
- C 12
- D 3

Previously asked in: 2025 30/3/1 Q5

♦ Quadratic Equations

4.3 Solution of a Quadratic Equation by Factorisation

Q66. § 4.2 Quadratic Equations § 4.3 Solution of a Quadratic Equation by Factorisation § 4.5 Summary**[1]**

The quadratic equation whose roots are 7 and $\frac{1}{7}$ is :

- A $7x^2 - 50x + 7 = 0$
- B $7x^2 - 50x + 1 = 0$
- C $7x^2 + 50x - 7 = 0$
- D $7x^2 + 50x - 1 = 0$

Previously asked in: 2025 30/2/1 Q3

♦ Quadratic Equations

4.2 Quadratic Equations

Q67. § 4.1 Introduction**[5]**

The total cost of certain piece of cloth was ₹2,100. During special sale time, the shopkeeper offered 2 m extra cloth for free thus reducing the price of cloth per metre by ₹120. What was the original per metre price of cloth and its length?

Previously asked in: 2026 30/4/1 Q32 (OR-2)

♦ Quadratic Equations

4.2 Quadratic Equations

Q68. § 4.4 Nature of Roots § 4.5 Summary**[2]**

Verify that roots of the quadratic equation $(p - q)x^2 + (q - r)x + (r - p) = 0$ are equal when $q + r = 2p$.

Previously asked in: 2026 30/4/1 Q21

♦ Quadratic Equations 4.4 Nature of Roots

Q69. § 4.4 Nature of Roots § 4.5 Summary**[1]**

If the quadratic equation $9x^2 + 8kx + 16 = 0$ has real and equal roots, then the value of k is

- A 3
- B -3
- C -4
- D $\frac{3}{2}$

Previously asked in: 2026 30/4/1 Q1

♦ Quadratic Equations 4.4 Nature of Roots

Q70. § 5.5 Summary**[3]**

In an A.P., the sum of three consecutive terms is 24 and the sum of their squares is 194. Find the numbers.

Previously asked in: 2024 30/2/1 Q26(b) (OR-2)

♦ Arithmetic Progressions 4.3 Solution of a Quadratic Equation by Factorisation 5.2 Arithmetic Progressions

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