

Quadratic Equations - Exercise 4.1

Exercise 4.1 with independently verified solutions.

CHAPTER

Quadratic Equations

RESOURCE

NCERT Exercises

SOURCE

NCERT Mathematics, Reprint 2026-27

PART 1

Verified NCERT questions and solutions

Verified NCERT questions and solutions

Solutions are checked independently and follow the supplied NCERT chapter edition.

QUESTION

Question 1

quadratic equations · standard form

Check whether the following are quadratic equations.

1. $(x + 1)^2 = 2(x - 3)$
2. $x^2 - 2x = (-2)(3 - x)$
3. $(x - 2)(x + 1) = (x - 1)(x + 3)$
4. $(x - 3)(2x + 1) = x(x + 5)$
5. $(2x - 1)(x - 3) = (x + 5)(x - 1)$
6. $x^2 + 3x + 1 = (x - 2)^2$
7. $(x + 2)^3 = 2x(x^2 - 1)$
8. $x^3 - 4x^2 - x + 1 = (x - 2)^3$

Solution

1. $x^2 + 7 = 0$

Quadratic.

2. $x^2 - 4x + 6 = 0$

Quadratic.

3. $x^2 - x - 2 = x^2 + 2x - 3 \Rightarrow 3x - 1 = 0$

Not quadratic.

4. $2x^2 - 5x - 3 = x^2 + 5x \Rightarrow x^2 - 10x - 3 = 0$

Quadratic.

5. $2x^2 - 7x + 3 = x^2 + 4x - 5 \Rightarrow x^2 - 11x + 8 = 0$

Quadratic.

6. $x^2 + 3x + 1 = x^2 - 4x + 4 \Rightarrow 7x - 3 = 0$

Not quadratic.

7. $x^3 + 6x^2 + 12x + 8 = 2x^3 - 2x \Rightarrow x^3 - 6x^2 - 14x - 8 = 0$

Not quadratic.

8. $x^3 - 4x^2 - x + 1 = x^3 - 6x^2 + 12x - 8 \Rightarrow 2x^2 - 13x + 9 = 0$

Quadratic.

QUESTION

Question 2

forming quadratic equations · word problems

Represent each situation as a quadratic equation.

1. A rectangular plot has area 528 m^2 and length one metre more than twice its breadth.
2. The product of two consecutive positive integers is 306.
3. Rohan's mother is 26 years older than him; the product of their ages three years from now is 360.
4. A train covers 480 km. At 8 km/h less, it would take 3 hours longer.

Solution

1. Let breadth = x m, length = $2x + 1$ m.

$$x(2x + 1) = 528 \Rightarrow 2x^2 + x - 528 = 0$$

2. Let the integers be x and $x + 1$.

$$x(x + 1) = 306 \Rightarrow x^2 + x - 306 = 0$$

3. Let Rohan's present age be x years; his mother is $x + 26$.

$$(x + 3)(x + 29) = 360 \Rightarrow x^2 + 32x - 273 = 0$$

4. Let the speed be x km/h.

$$\frac{480}{x - 8} = \frac{480}{x} + 3$$

$$x^2 - 8x - 1280 = 0$$