

Polynomials - Exercise 2.2

Exercise 2.2 with independently verified solutions.

CHAPTER

Polynomials

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 polynomials · zeroes and coefficients

Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients.

1. $x^2 - 2x - 8$
2. $4s^2 - 4s + 1$
3. $6x^2 - 3 - 7x$
4. $4u^2 + 8u$
5. $t^2 - 15$
6. $3x^2 - x - 4$

Solution

1. $(x - 4)(x + 2); \quad 4, -2; \quad \alpha + \beta = 2 = -\frac{b}{a}, \quad \alpha\beta = -8 = \frac{c}{a}$

2. $(2s - 1)^2; \quad \frac{1}{2}, \frac{1}{2}; \quad \alpha + \beta = 1 = -\frac{b}{a}, \quad \alpha\beta = \frac{1}{4} = \frac{c}{a}$

3. $(3x + 1)(2x - 3); \quad -\frac{1}{3}, \frac{3}{2}; \quad \alpha + \beta = \frac{7}{6} = -\frac{b}{a}, \quad \alpha\beta = -\frac{1}{2} = \frac{c}{a}$

4. $4u(u + 2); \quad 0, -2; \quad \alpha + \beta = -2 = -\frac{b}{a}, \quad \alpha\beta = 0 = \frac{c}{a}$

5. $(t - \sqrt{15})(t + \sqrt{15}); \quad \sqrt{15}, -\sqrt{15}; \quad \alpha + \beta = 0 = -\frac{b}{a}, \quad \alpha\beta = -15 = \frac{c}{a}$

6. $(3x - 4)(x + 1); \quad \frac{4}{3}, -1; \quad \alpha + \beta = \frac{1}{3} = -\frac{b}{a}, \quad \alpha\beta = -\frac{4}{3} = \frac{c}{a}$

QUESTION

Question 2

forming a quadratic polynomial · sum and product of zeroes

Find a quadratic polynomial in each case when the given numbers are respectively the sum and product of its zeroes.

1. $\frac{1}{4}, -1$

2. $\sqrt{2}, \frac{1}{3}$

3. $0, \sqrt{5}$

4. $1, 1$

5. $-\frac{1}{4}, \frac{1}{4}$

6. $4, 1$

Solution

For sum S and product P, one suitable polynomial is $x^2 - Sx + P$. Multiplying by a non-zero constant gives an equivalent answer.

1. $4x^2 - x - 4$

2. $3x^2 - 3\sqrt{2}x + 1$

3. $x^2 + \sqrt{5}$

4. $x^2 - x + 1$

5. $4x^2 + x + 1$

6. $x^2 - 4x + 1$