

Mathematics

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(Chapter – 2) (Polynomials)(Exemplar Problems)
(Class – IX)

Exercise 2.4

Question 5:

Simplify $(2x - 5y)^3 - (2x + 5y)^3$.

Answer 5:

Given that: $(2x - 5y)^3 - (2x + 5y)^3$.

$$= [(2x - 5y) - (2x + 5y)][(2x - 5y)^2 + (2x - 5y)(2x + 5y) + (2x + 5y)^2]$$

$$[\because a^3 - b^3 = (a - b)(a^2 + ab + b^2)]$$

$$= (-10y)[(4x^2 + 25y^2 - 20xy) + (4x^2 - 25y^2) + (4x^2 + 25y^2 + 20xy)]$$

$$[\because (a + b)^2 = (a^2 + 2ab + b^2), (a - b)^2 = (a^2 - 2ab + b^2)]$$

$$= (-10y)[(12x^2 + 25y^2)]$$

$$= -120x^2y - 250y^3$$

