

Mathematics

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

Exercise 2.3

Question 35:

Find the following product:

$$(2x - y + 3z)(4x^2 + y^2 + 9z^2 + 2xy + 3yz - 6xz)$$

Answer 35:

$$\text{Given that: } (2x - y + 3z)(4x^2 + y^2 + 9z^2 + 2xy + 3yz - 6xz)$$

$$= [2x + (-y) + 3z][(2x)^2 + (-y)^2 + (3z)^2 - (2x)(-y) - (-y)(3z) - (3z)(2x)]$$

$$= (2x)^3 + (-y)^3 + (3z)^3 - 3(2x)(-y)(3z)$$

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

$$= 8x^3 - y^3 + 27z^3 + 18xyz$$

