

Mathematics

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

(Class – IX)

Exercise 2.3

Question 34:

Factorise:

(i) $1 + 64x^3$

(ii) $a^3 - 2\sqrt{2}b^3$

Answer 34:

(i). Given that: $1 + 64x^3$

$$= 1 + (4x)^3$$

$$= (1 + 4x)[(1)^2 - (1)(4x) + (4x)^2]$$

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

$$= (1 + 4x)(1 - 4x + 16x^2)$$

(ii). Given that: $a^3 - 2\sqrt{2}b^3$

$$= (a)^3 - (\sqrt{2}b)^3$$

$$= (a - \sqrt{2}b) \left[(a)^2 + (a)(\sqrt{2}b) + (\sqrt{2}b)^2 \right]$$

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

$$= (a - \sqrt{2}b)(a^2 + \sqrt{2}ab + 2b^2)$$

