

Mathematics

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

(Class – IX)

Exercise 2.3

Question 32:

Factorise the following:

(i) $1 - 64a^3 - 12a + 48a^2$

(ii) $8p^3 + \frac{12}{5}p^2 + \frac{6}{25}p + \frac{1}{125}$

Answer 32:

(i). Given that: $1 - 64a^3 - 12a + 48a^2$
 $= (1)^3 + (-4a)^3 + 3(1)^2(-4a) + 3(1)(-4a)^2$
 $= (1 + (-4a))^3$

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

$$= (1 - 4a)^3$$

(ii). Given that: $8p^3 + \frac{12}{5}p^2 + \frac{6}{25}p + \frac{1}{125}$
 $= 8p^3 + \frac{1}{125} + \frac{12}{5}p^2 + \frac{6}{25}p$
 $= (2p)^3 + \left(\frac{1}{5}\right)^3 + 3(2p)^2\left(\frac{1}{5}\right) + 3(2p)\left(\frac{1}{5}\right)^2$
 $= \left(2p + \frac{1}{5}\right)^3$

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

