

Mathematics

(www.tiwariacademy.net)

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

(Class – IX)

Exercise 2.3

Question 33:

Find the following products:

(i) $\left(\frac{x}{2} + 2y\right)\left(\frac{x^2}{4} - xy + 4y^2\right)$

(ii) $(x^2 - 1)(x^4 + x^2 + 1)$

Answer 33:

(i). Given that: $\left(\frac{x}{2} + 2y\right)\left(\frac{x^2}{4} - xy + 4y^2\right)$
 $= \left(\frac{x}{2} + 2y\right)\left[\left(\frac{x}{2}\right)^2 - \left(\frac{x}{2}\right)(2y) + (2y)^2\right]$
 $= \left(\frac{x}{2}\right)^3 + (2y)^3$

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

$= \frac{x^3}{8} + 8y^3$



(ii). Given that: $(x^2 - 1)(x^4 + x^2 + 1)$
 $= (x^2 - 1)[(x^2)^2 + (x^2)(1) + (1)^2]$
 $= (x^2)^3 - (1)^3$

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

$= x^6 - 1$

