Exercise 2.3

Question 25:

Using suitable identity, evaluate the following:

(i) 103^3 **(ii)** 101×102 **(iii)** 999^2

Answer 25:

(i). Given that: 103^3

$= (103)^3$

$= (100 + 3)^3$

$= (100)^3 + (3)^3 + 3(100)^2 3 + 3(100)3^2$ $[\because (a + b)^3 = (a^3 + b^3 + 3a^2b + 3ab^2)]$

$= 1000000 + 27 + 90000 + 2700$

$= 1092727$

(ii). Given that: 101×102

$= (100 + 1) \times (100 + 2)$

$= (100)^2 + (1 + 2)100 + 1 \times 2$

$[\because (x + a)(x + b) = x^2 + (a + b)x + a \times b]$

$= 10000 + 300 + 2$

$= 10302$

(iii). Given that: 999^2

$= (999)^2$

$= (1000 - 1)^2$

$= (1000)^2 - 2 \times 1000 \times 1 + 1^2$ $[\because (a - b)^2 = (a^2 - 2ab + b^2)]$

$= 1000000 - 2000 + 1$

$= 1000001 - 2000$

$= 998001$