



Algebraic Expressions and Identities Ex 6.7 Q2

Answer :

(i) Here, we will use the identity $(x + a)(x + b) = x^2 + (a + b)x + ab$

$$\begin{aligned}102 \times 106 \\&= (100 + 2)(100 + 6) \\&= 100^2 + (2 + 6)100 + 2 \times 6 \\&= 10000 + 800 + 12 \\&= 10812\end{aligned}$$

(ii) Here, we will use the identity $(x + a)(x + b) = x^2 + (a + b)x + ab$

$$\begin{aligned}109 \times 107 \\&= (100 + 9)(100 + 7) \\&= 100^2 + (9 + 7)100 + 9 \times 7 \\&= 10000 + 1600 + 63 \\&= 11663\end{aligned}$$

(iii) Here, we will use the identity $(x + a)(x + b) = x^2 + (a + b)x + ab$

$$\begin{aligned}35 \times 37 \\&= (30 + 5)(30 + 7) \\&= 30^2 + (5 + 7)30 + 5 \times 7 \\&= 900 + 360 + 35 \\&= 1295\end{aligned}$$

(iv) Here, we will use the identity $(x + a)(x + b) = x^2 + (a + b)x + ab$

$$\begin{aligned}53 \times 55 \\&= (50 + 3)(50 + 5) \\&= 50^2 + (3 + 5)50 + 3 \times 5 \\&= 2500 + 400 + 15 \\&= 2915\end{aligned}$$

(v) Here, we will use the identity $(x + a)(x - b) = x^2 + (a - b)x - ab$

$$\begin{aligned}103 \times 96 \\&= (100 + 3)(100 - 4) \\&= 100^2 + (3 - 4)100 - 3 \times 4 \\&= 10000 - 100 - 12 \\&= 9888\end{aligned}$$

(vi) Here, we will use the identity $(x + a)(x + b) = x^2 + (a + b)x + ab$

$$\begin{aligned}34 \times 36 \\&= (30 + 4)(30 + 6) \\&= 30^2 + (4 + 6)30 + 4 \times 6 \\&= 900 + 300 + 24 \\&= 1224\end{aligned}$$

(vii) Here, we will use the identity $(x - a)(x + b) = x^2 + (b - a)x - ab$

$$\begin{aligned}994 \times 1006 \\&= (1000 - 6) \times (1000 + 6)\end{aligned}$$

$$\begin{aligned} &= 1000^2 + (6 - 6) \times 1000 - 6 \times 6 \\ &= 1000000 - 36 \\ &= 999964 \end{aligned}$$

***** END *****