Exercise 1.3

Question 1:

Find the each of the following products:

(a) 3 x (–1)
(b) (–1) x 225
(c) (–21) x (–30)
(d) (–316) x (–1)
(e) (–15) x 0 x (–18)
(f) (–12) x (–11) x (10)
(g) 9 x (–3) x (–6)
(h) (–18) x (–5) x (–4)
(i) (–1) x (–2) x (–3) x 4
(j) (–3) x (–6) x (2) x (–1)

Answer 1:

(a) 3 x (–1) = –3
(b) (–1) x 225 = –225
(c) (–21) x (–30) = 630
(d) (–316) x (–1) = 316
(e) (–15) x 0 x (–18) = 0
(f) (–12) x (–11) x (10) = 132 x 10 = 1320
(g) 9 x (–3) x (–6) = 9 x 18 = 162
(h) (–18) x (–5) x (–4) = 90 x (–4) = –360
(i) (–1) x (–2) x (–3) x 4 = (–6 x 4) = –24
(j) (–3) x (–6) x (2) x (–1) = (–18) x (–2) = 36

Question 2:

Verify the following:

(a) 18 x [7 + (–3)] = [18 x 7] + [18 x (–3)]
(b) (–21) x [(–4) + (–6)] = [(–21) x (-4)] + [(–21) x (–6)]

Answer 2:

(a) 18 x [7 + (–3)] = [18 x 7] + [18 x (–3)]
⇒ 18 x 4 = 126 + (–54)
⇒ 72 = 72
⇒ L.H.S. = R.H.S.
Hence verified.

(b) (–21) x [(–4) + (–6)] = [(–21) x (–4)] + [(–21) x (–6)]
⇒ (–21) x (–10) = 84 + 126
⇒ 210 = 210
⇒ L.H.S. = R.H.S.
Hence verified.

Question 3:

(i) For any integer a, what is $(-1)\times a$ equal to?

(ii) Determine the integer whose product with (-1) is:

(a) –22 (b) 37 (c) 0

Answer 3:

(i) $(-1)\times a = -a$, where a is an integer.

(ii) (a) $(-1)\times(-22) = 22$

(b) $(-1)\times 37 = -37$

(c) $(-1)\times 0 = 0$

Question 4:

Starting from $(-1)\times 5$, write various products showing some patterns to show $(-1)\times(-1)=1$.

Answer 4:

$(-1)\times 5 = -5$

$(-1)\times 4 = -4$

$(-1)\times 3 = -3$

$(-1)\times 2 = -2$

$(-1)\times 1 = -1$

$(-1)\times 0 = 0$

$(-1)\times(-1) = 1$

Thus, we can conclude that this pattern shows the product of one negative integer and one positive integer is negative integer whereas the product of two negative integers is a positive integer.