2 WHOLE NUMBERS

Exercise 2.1

Q.1. Write the next three natural numbers after 10999.

Ans. Next three natural numbers after 10999 are :

$10999 + 1 = 11000$

$11000 + 1 = 11001$

$11001 + 1 = 11002.$

Q.2. Write the three whole numbers occurring just before 10001.

Ans. Three whole numbers occurring just before 10001 are

$10001 - 1 = 10000$

$10000 - 1 = 9999$

$9999 - 1 = 9998$

Q.3. Which is the smallest whole number?

Ans. 0 is the smallest whole number.

Q.4. How many whole numbers are there between 32 and 53?

Ans. Whole numbers between 32 and 53 are :

33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51 and 52.

Hence, there are 20 whole numbers between 32 and 53.

Q.5. Write the successor of :

(a) 2440701 **(b) 100199**

(c) 1099999 **(d) 2345670**

Ans. (a) The successor of 2440701 is 2440701 + 1 = 2440702.

(b) The successor of 100199 is 100199 + 1 = 100200.

(c) The successor of 1099999 is 1099999 + 1 = 1100000.

(d) The successor of 2345670 is 2345670 + 1 = 2345671.

Q.6. Write the predecessor of :

(a) 94 **(b) 10000**

(c) 208090 **(d) 7654321**

Ans. (a) The predecessor of 94 is 94 – 1 = 93.

(b) The predecessor of 10000 is 10000 – 1 = 9999.

(c) The predecessor of 208090 is 208090 – 1 = 208089.

(d) The predecessor of 7654321 is 7654321 – 1 = 7654320.

Q.7. In each of the following pairs of numbers, state which whole number is on the left of the other number on the number line. Also write them with the appropriate sign (>, <) between them.

(a) 530, 503 **(b) 370, 307**

(c) 98765, 56789 **(d) 9830415, 10023001**

Ans. (a) The whole number 503 is on the left of the whole number 530 on the number line.
So, 503 < 530 or 530 > 503

(b) The whole number 307 is on the left of the whole number 370 on the number line.

So, 307 < 370 or 370 > 307

(c) The whole number 56789 is on the left of the whole number 98765 on the number line.

So, 56789 < 98765 or 98765 > 56789

(d) The whole number 9830415 is on the left of the whole number 10023001 on the number line.

So, 9830415 < 10023001

Q.8. Which of the following statements are true (T) and which are false (F)?

(a) Zero is the smallest natural number.
(b) 400 is the predecessor of 399.
(c) Zero is the smallest whole number.
(d) 600 is the successor of 599.
(e) All natural numbers are whole numbers.
(f) All whole numbers are natural numbers.
(g) The predecessor of a two digit number is never a single digit number.
(h) 1 is the smallest whole number.
(i) The natural number 1 has no predecessor.
(j) The whole number 1 has no predecessor.
(k) The whole number 13 lies between 11 and 12.
(l) The whole number 0 has no predecessor.
(m) The successor of a two digit number is always a two digit number.

Ans. (a) F (b) F (c) T (d) T (e) T
(f) F (g) F (h) F (i) T (j) F
(k) F (l) T (m) F

Exercise 2.2

Q.1. Find the sum by suitable rearrangement :
(a) 837 + 208 + 363 (b) 1962 + 453 + 1538 + 647

Ans. (a) 837 + 208 + 363 = (837 + 363) + 208
= 1200 + 208 = 1408

(b) 1962 + 453 + 1538 + 647
= (1962 + 1538) + (453 + 647)
= 3500 + 1100 = 4,600

Q.2. Find the product by suitable rearrangement :

(a) 2 × 1768 × 50 **(b) 4 × 166 × 25**

(c) 8 × 291 × 125 **(d) 625 × 279 × 16**

(e) 285 × 5 × 60 **(f) 125 × 40 × 8 × 25**

Ans. (a) $2 \times 1768 \times 50 = (2 \times 50) \times 1768$

$= 100 \times 1768 = 176800$

(b) $4 \times 166 \times 25 = (4 \times 25) \times 166$

$= 100 \times 166 = 16600$

(c) $8 \times 291 \times 125 = (8 \times 125) \times 291$

$= 1000 \times 291 = 291000$

(d) $625 \times 279 \times 16 = (625 \times 16) \times 279$

$= 10000 \times 279 = 2790000$

(e) $285 \times 5 \times 60 = 285 \times (5 \times 60)$

$= 285 \times 300 = 85500$

(f) $125 \times 40 \times 8 \times 25 = (125 \times 8) \times (40 \times 25)$

$= 1000 \times 1000 = 1000000$

Q.3. Find the value of the following :

(a) 297 × 17 + 297 × 3 **(b) 54279 × 92 + 8 × 54279**

(c) 81265 × 169 – 81265 × 69

(d) 3845 × 5 ×782 + 769 × 25 × 218

Ans. (a) $297 \times 17 + 297 \times 3$

$= 297 \times (17 + 3)$

$= 297 \times 20 = 5940$

(b) $54279 \times 92 + 8 \times 54279$

$= 54279 \times (92 + 8)$

$= 54279 \times 100 = 5427900$

(c) $81265 \times 169 – 81265 \times 69$

$= 81265 (169 – 69)$

$= 81265 \times 100 = 8126500$

(d) $3845 \times 5 \times 782 + 769 \times 25 \times 218$

$= (769 \times 5) \times 5 \times 782 + 769 \times 25 \times 218$
$= 769 \times (5 \times 5) \times 782 + 769 \times 25 \times 218$
$= 769 \times 25 \times 782 + 769 \times 25 \times 218$
$= 769 \times 25\ (782 + 218)$
$= 769 \times 25 \times 1000 = 19225000$

Q.4. Find the product using suitable properties.
(a) 738 × 103 **(b) 854 × 102**
(c) 258 × 1008 **(d) 1005 × 168**

Ans. (a) $738 \times 103 = 738 \times (100 + 3)$
$= 738 \times 100 + 738 \times 3$
$= 73800 + 2214$
$= 76014$

(b) $854 \times 102 = 854 \times (100 + 2)$
$= 854 \times 100 + 854 \times 2$
$= 85400 + 1708 = 87108$

(c) $258 \times 1008 = 258 \times (1000 + 8)$
$= 258 \times 1000 + 258 \times 8$
$= 258000 + 2064 = 260064$

(d) $1005 \times 168 = (1000 + 5) \times 168$
$= 1000 \times 168 + 5 \times 168$
$= 168000 + 840 = 168840$

Q.5. A taxi driver filled his car petrol tank with 40 litres of petrol of Monday. The next day, he filled the tank with 50 litres of petrol. If the petrol costs Rs 44 per litre, how much did he spend in all on petrol?

Ans. Petrol purchased on Monday = 40 litres
Petrol purchased on next day = 50 litres
Total petrol purchased = $(40 + 50)l = 90l$
Cost of $1l$ of petrol = Rs 44

So, cost of 90*l* of petrol = 90 × Rs 44
= Rs 3960

Hence, he spent Rs 3960 on petrol

Q.6. A vendor supplies 32 litres of milk to a hotel in the morning and 68 litres of milk in the evening. If the milk costs Rs 15 per litre, how much money is due to the vendor per day?

Ans. Milk supplied in the morning = 32 litres
Milk supplied in the evening = 68 litres
∴ Total milk supplied in one day = (32 + 68)*l* = 100*l*
Cost of 1*l* milk = Rs 15
∴ Cost of 100 *l* milk = Rs 100 × 15
= Rs 1500

Hence, Rs 1500 is due to the vendor per day.

Q.7. Match the following :

(i) 425 × 136 = 425 × (6 + 30 + 100)	**(a) Commutativity under multiplication.**
(ii) 2 × 49 × 50 = 2 × 50 × 49	**(b) Commutativity under addition.**
(iii) 80 + 2005 + 20 = 80 + 20 + 2005	**(c) Distributivity of multiplication over addition.**

Ans. (i) → (c), (ii) → (a), (iii) → (b)

Exercise 2.3

Q.1. Which of the following will not represent zero :

(a) 1 + 0 **(b) 0 × 0** **(c)** $\frac{0}{2}$ **(d)** $\frac{10-10}{2}$

Ans. (a) $1 + 0 = 1$ (b) $0 \times 0 = 0$

(c) $\frac{0}{2} = 0$ (d) $\frac{10-10}{2} = \frac{0}{2} = 0.$

$\therefore$ (a) will not represent zero.

Q.2. If the product of two whole numbers is zero, can we say that one or both of them will be zero? Justify through examples.

Ans. Yes, either one or both of them will be zero

One of them is zero *i.e.*, $0 \times 1 = 0$

Both of them are zero, *i.e.*, $0 \times 0 = 0$.

Q.3. If the product of two whole numbers is 1, can we say that one or both of them will be 1? Justify through an example.

Ans. Both of them will be 1 *i.e.*, $1 \times 1 = 1$.

Q.4. Find using distributive property :

(a) 728 × 101 (b) 5437 × 1001 (c) 824 × 25

(d) 4275 × 125 (e) 504 × 35

Ans. (a) $728 \times 101 = 728 \times (100 + 1)$

$= 728 \times 100 + 728 \times 1$

$= 72800 + 728 = 73528$

(b) $5437 \times 1001 = 5437 \times (1000 + 1)$

$= 5437 \times 1000 + 5437 \times 1$

$= 5437000 + 5437$

$= 5442437$

(c) $824 \times 25 = 824 \times (20 + 5)$

$= 824 \times 20 + 824 \times 5$

$= 16480 + 4120$

$= 20600$

(d) $4275 \times 125 = 4275 \times (100 + 25)$

$= 4275 \times 100 + 4275 \times 25$

$= 427500 + 106875 = 534375$

(e) $504 \times 35 = (500 + 4) \times 35 = 500 \times 35 + 4 \times 35$

$= 17500 + 140 = 17640$

Q.5. Study the pattern :

$$\mathbf{1 \times 8 + 1 = 9}$$
$$\mathbf{12 \times 8 + 2 = 98}$$
$$\mathbf{123 \times 8 + 3 = 987}$$
$$\mathbf{1234 \times 8 + 4 = 9876}$$
$$\mathbf{12345 \times 8 + 5 = 98765}$$

Write the next two steps. Can you say how the pattern works?

Ans. Next two steps are as follows :

$123456 \times 8 + 6 = 987654$

$1234567 \times 8 + 7 = 9876543$

The pattern works as follows :

$$1 \times 8 + 1 = 9$$
$$(11 + 1) \times 8 + 2 = 98$$
$$(111 + 11 + 1) \times 8 + 3 = 987$$
$$(1111 + 111 + 11 + 1) \times 8 + 4 = 9876$$
$$(11111 + 1111 + 111 + 11 + 1) \times 8 + 5 = 98765$$
$$(111111 + 11111 + 111 + 11 + 1) \times 8 + 5 = 987654$$
$$(1111111 + 11111 + 111 + 11 + 1) \times 8 + 5 = 9876543$$