EDUGROSS
WISDOMISING KNOWLEDGE

NCERT Solutions for Class 6 Maths Chapter 2
Whole Numbers

EXERCISE 2.1 PAGE NO: 31

1. Write the next three natural numbers after 10999.
Solutions:
The next three whole numbers after 10999 are 11000, 11001 and 11002

2. Write the three whole numbers occurring just before 10001. Solutions:
The three whole numbers occurring just before 10001 are 10000, 9999 and 9998

3. Which is the smallest whole number? Solutions:
The smallest whole number is 0

4. How many whole numbers are there between 32 and 53?
Solutions:
The 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, 52)
Hence, there are 20 whole numbers between 32 and 53

5. Write the successor of:
(a) 2440701   (b) 100199   (c) 1099999   (d) 2345670
Solutions:
The successors are
(a) 2440701 + 1 = 2440702
(b) 100199 + 1 = 100200
(c) 1099999 + 1 = 1100000
(d) 2345670 + 1 = 2345671

6. Write the predecessor of:
(a) 94   (b) 10000   (c) 208090   (d) 7654321
Solutions:
The predecessors are
(a) 94 – 1 = 93
(b) 10000 – 1 = 9999
(c) 208090 – 1 = 208089
(d) 7654321 – 1 = 7654320

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
Solutions:
(a) Since, 530 > 503
        Hence, 503 is on the left side of 530 on the number line

(b) Since, 370 > 307

Hence, 307 is on the left side of 370 on the number line

(c) Since, 98765 > 56789

Hence, 56789 is on the left side of 98765 on the number line

(d) Since, 9830415 < 10023001

Hence, 9830415 is on the left side of 10023001 on the number line

8. Which of the following statements are true (T) and which are false (F)?
(a) Zero is the smallest natural number.
Solution:
False
0 is not a natural number

(b) 400 is the predecessor of 399.
Solution:
False
The predecessor of 399 is 398

Since, (399 − 1 = 398)

(c) Zero is the smallest whole number.
Solution:
True
Zero is the smallest whole number

(d) 600 is the successor of 599.
Solution:
True
Since (599 + 1 = 600)

(e) All natural numbers are whole numbers.
Solution:
True
All natural numbers are whole numbers

(f) All whole numbers are natural numbers.
Solution:
False
0 is a whole number but is not a natural number

(g) The predecessor of a two digit number is never a single digit number.
Solution:
False
Example the predecessor of 10 is 9

(h) 1 is the smallest whole number.
Solution:
False
0 is the smallest whole number

(i) The natural number 1 has no predecessor.
True
The predecessor of 1 is 0 but is not a natural number

(j) The whole number 1 has no predecessor.
Solution:
False
0 is the predecessor of 1 and is a whole number

(k) The whole number 13 lies between 11 and 12.
Solution:
False
13 does not lie between 11 and 12

(l)   The whole number 0 has no predecessor.
Solution:
True
The predecessor of 0 is -1 and is not a whole number

(m) The successor of a two digit number is always a two digit number.
Solution:
False
As the successor of 99 is 100

EXERCISE 2.2

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

Solutions:
(a) Given 837 + 208 + 363
   = (837 + 363) + 208
   = 1200 + 208
   = 1408

(b) Given 1962 + 453 + 1538 + 647
   = (1962 + 1538) + (453 + 647)
   = 3500 + 1100
   = 4600

2. Find the product by suitable rearrangement:
(a) $2 \times 1768 \times 50$
(b) $4 \times 166 \times 25$
(c) $8 \times 291 \times 125$
(d) $625 \times 279 \times 16$
(e) $285 \times 5 \times 60$
(f) $125 \times 40 \times 8 \times 25$

Solutions:
(a) Given $2 \times 1768 \times 50$
   $= 2 \times 50 \times 1768$
   $= 100 \times 1768$
   $= 176800$

(b) Given $4 \times 166 \times 25$
   $= 4 \times 25 \times 166$
   $= 100 \times 166$
   $= 16600$

(c) Given $8 \times 291 \times 125$
   $= 8 \times 125 \times 291$
   $= 1000 \times 291$
   $= 291000$

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

$= 625 \times 16 \times 279$

$= 10000 \times 279$

$= 2790000$

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

$= 285 \times 300$

$= 85500$

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

$= 125 \times 8 \times 40 \times 25$

$= 1000 \times 1000$

$= 1000000$

3. Find the value of the following:

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

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

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

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

Solutions:

(a) Given $297 \times 17 + 297 \times 3$

$= 297 \times (17 + 3)$

$= 297 \times 20$

$= 5940$

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

$= 54279 \times 92 + 54279 \times 8$

$= 54279 \times (92 + 8)$

$= 54279 \times 100$

$= 5427900$

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

$= 81265 \times (169 – 69)$

$= 81265 \times 100$

$= 8126500$

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

$= 3845 \times 5 \times 782 + 769 \times 5 \times 5 \times 218$

$= 3845 \times 5 \times 782 + 3845 \times 5 \times 218$

$= 3845 \times 5 \times (782 + 218)$

$= 19225 \times 1000$

$= 19225000$

4. Find the product using suitable properties.
(a) 738 × 103
(b) 854 × 102
(c) 258 × 1008 (d) 1005 × 168
Solutions:
(a) Given 783 × 103

$\qquad$ = 783 × (100 + 3)

$\qquad$ = 783 × 100 + 783 × 3 $\qquad$ (using distributive property)

$\qquad$ = 78300 + 2214

$\qquad$ = 76014

(b) Given 854 × 102 =
854 × (100 + 2)

$\qquad$ = 854 × 100 + 854 × 2 $\qquad$ (using distributive property)

$\qquad$ = 85400 + 1708

$\qquad$ = 87108

(c) Given 258 × 1008

$\qquad$ = 258 × (1000 + 8)

$\qquad$ = 258 × 1000 + 258 × 8 $\qquad$ (using distributive property)

$\qquad$ = 258000 + 2064

$\qquad$ = 260064

(d) Given 1005 × 168

$\qquad$ = (1000 + 5) × 168

$\qquad$ = 1000 × 168 + 5 × 168 $\qquad$ (using distributive property)

$\qquad$ = 168000 + 840

$\qquad$ = 168840

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

Petrol quantity filled on Monday = 40 litres

Petrol quantity filled on Tuesday = 50 litres

Total petrol quantity filled = (40 + 50) litre

Cost of petrol per litre = ▢ 44

Total money spent = 44 × (40 + 50)

$\qquad$ = 44 × 90

$\qquad$ = ▢ 3960

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 ⬚ 45 per litre, how much money is due to the vendor per day?
Solutions:
Milk quantity supplied in the morning = 32 litres
Milk quantity supplied in the evening = 68 litres
Cost of milk per litre = ⬚ 45
Total cost of milk per day = 45 × (32 + 68)
    = 45 × 100
    = ⬚ 4500
Hence, the money is due to the vendor per day is ⬚ 4500

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.**
Solutions:
(i) 425 × 136 = 425 × (6 + 30 + 100)   (c) Distributivity of multiplication over addition**.**
Hence (c) is the correct answer

(ii) 2 × 49 × 50 = 2 × 50 × 49   (a) Commutativity under multiplication
Hence, (a) is the correct answer

(iii) 80 + 2005 + 20 = 80 + 20 + 2005   (b) Commutativity under addition
Hence, (b) is the correct answer

EXERCISE 2.3   PAGE NO: 43

1. Which of the following will not represent zero:
(a) 1 + 0
(b) 0 × 0
(c) 0 / 2 (d) (10 – 10) / 2

Solutions:
(a) 1 + 0 = 1
       Hence, it does not represent zero
(b) 0 × 0 = 0
       Hence, it represents zero
(c) 0 / 2 = 0
       Hence, it represents zero
(d) (10 – 10) / 2 = 0 / 2 = 0
       Hence, it represents zero

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.

Solutions:
If product of two whole numbers is zero, definitely one of them is zero
Example: $0 × 3 = 0$ and $15 × 0 = 0$
If product of two whole numbers is zero, both of them may be zero
Example: $0 × 0 = 0$
Yes, if the product of two whole numbers is zero, then both of them will be zero

3. If the product of two whole numbers is 1, can we say that one or both of them will be 1? Justify through examples.
Solutions:
If the product of two whole numbers is 1, both the numbers should be equal to 1 Example:
$1 × 1 = 1$
But $1 × 5 = 5$
Hence, its clear that the product of two whole numbers will be 1, only in situation when both numbers to be multiplied are 1

4. Find using distributive property:
(a) 728 × 101
(b) 5437 × 1001
(c) 824 × 25
(d) 4275 × 125
(e) 504 × 35

Solutions:
(a) Given 728×101

$= 728 \times (100 + 1)$

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

$= 72800 + 728$

$= 73528$

(b) Given 5437×1001

$= 5437 \times (1000 + 1)$

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

$= 5437000 + 5437$

$= 5442437$

(c) Given 824×25

$= (800 + 24) \times 25$

$= (800 + 25 - 1) \times 25$

$= 800 \times 25 + 25 \times 25 - 1 \times 25$

$= 20000 + 625 - 25$

$= 20000 + 600$

$= 20600$

(d) Given 4275×125

$= (4000 + 200 + 100 - 25) \times 125$

$= (4000 \times 125 + 200 \times 125 + 100 \times 125 - 25 \times 125)$

$= 500000 + 25000 + 12500 - 3125$

$= 534375$

(e) Given 504×35

$= (500 + 4) \times 35$

$= 500 \times 35 + 4 \times 35$

$= 17500 + 140$

$= 17640$

5. Study the pattern:

$1 \times 8 + 1 = 9$ $\qquad$ $1234 \times 8 + 4 = 9876$

$12 \times 8 + 2 = 98$ $\qquad$ $12345 \times 8 + 5 = 98765$

$123 \times 8 + 3 = 987$

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

(Hint: $12345 = 11111 + 1111 + 111 + 11 + 1$)

Solutions:

$123456 \times 8 + 6 = 987654$

$1234567 \times 8 + 7 = 9876543$

Given 123456 = (111111 + 11111 + 1111 + 111 + 11 + 1)

123456 × 8 = (111111 + 11111 + 1111 + 111 + 11 + 1) × 8

$\qquad$ = 111111 × 8 + 11111 × 8 + 1111 × 8 + 111 × 8 + 11 × 8 + 1 × 8

$\qquad$ = 888888 + 88888 + 8888 + 888 + 88 + 8

$\qquad$ = 987648

123456 × 8 + 6 = 987648 + 6

$\qquad$ = 987654

Yes, here the pattern works

1234567 × 8 + 7 = 9876543

Given 1234567 = (1111111 + 111111 + 11111 + 1111 + 111 + 11 + 1)

1234567 × 8 = (1111111 + 111111 + 11111 + 1111 + 111 + 11 + 1) × 8

$\qquad$ = 1111111 × 8 + 111111 × 8 + 11111 × 8 + 1111 × 8 + 111 × 8 + 11 × 8 + 1 × 8

$\qquad$ = 8888888 + 888888 + 88888 + 8888 + 888 + 88 + 8

$\qquad$ = 9876536

1234567 × 8 + 7 = 9876536 + 7

$\qquad$ = 9876543

Yes, here the pattern works