RS Aggarwal Solutions For Class 6 Math Chapter 3 Whole Number

ANSWER:

The next three whole numbers after 30999 are 31000, 31001, and 31002.

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ANSWER:

Three whole numbers occurring just before 10001 are as follows:

10001 − 1 = 10000
10000 − 1 = 9999
9999 − 1 = 9998

∴ The three whole numbers just before 10001 are 10000, 9999 and 9998.

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ANSWER:

Number of whole numbers between 1032 and 1209 = (1209 − 1032) − 1
= 177 − 1
= 176

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ANSWER:

0 (zero) is the smallest whole number.

All the natural numbers along with 0 are called whole numbers.

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ANSWER:

(i) Successor of 2540801 = 2540801 + 1 = 2540802
(ii) Successor of 9999 = 9999 + 1 = 10000

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(iii) Successor of 50904 = 50904 + 1 = 50905
(iv) Successor of 61639 = 61639 + 1 = 61640
(v) Successor of 687890 = 687890 + 1 = 687891
(vi) Successor of 5386700 = 5386700 + 1 = 5386701
(vii) Successor of 6475999 = 6475999 + 1 = 6476000
(viii) Successor of 9999999 = 9999999 + 1 = 10000000

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ANSWER:

(i) Predecessor of 97 = 97 − 1 = 96
(ii) Predecessor of 10000 = 10000 − 1 = 9999
(iii) Predecessor of 36900 = 36900 − 1 = 36899
(iv) Predecessor of 7684320 = 7684320 − 1 = 7684319
(v) Predecessor of 1566391 = 1566391 − 1 = 1566390
(vi) Predecessor of 2456800 = 2456800 − 1 = 2456799
(vii) Predecessor of 100000 = 100000 − 1 = 99999
(viii) Predecessor of 1000000 = 1000000 − 1 = 999999

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ANSWER:

The three consecutive whole numbers just preceding 7510001 are as follows:

7510001 − 1 = 7510000
7510000 − 1 = 7509999
7509999 − 1 = 7509998

∴ The three consecutive numbers just preceding 7510001 are 7510000, 7509999 and 7509998.

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ANSWER:

(i) False. 0 is not a natural number.1 is the smallest natural number.
(ii) True.
(iii) False. 0 is a whole number but not a natural number.

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(iv) True. Natural numbers include 1,2,3 ..., which are whole numbers.
(v) False. 0 is the smallest whole number.
(vi) True. The predecessor of 1 is 1 − 1 = 0, which is not a natural number.
(vii) False. The predecessor of 1 is 1 − 1 = 0, which is a whole number.
(viii) True. The predecessor of 0 is 0 − 1 = −1, which is not a whole number.
(ix) False. The predecessor of a two-digit number can be a single digit number. For example, the predecessor of 10 is 10 − 1, i.e., 9.
(x) False. The successor of a two-digit number is not always a two-digit number. For example, the successor of 99 is 99 + 1, i.e., 100.
(xi) False. The predecessor of 499 is 499 − 1, i.e., 498.
(xii) True. The successor of 6999 is 6999 + 1, i.e., 7000.

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ANSWER:

(i) 458 + 639 = 639 + 458
(ii) 864 + 2006 = 2006 + 864
(iii) 1946 + 984 = 984 + 1946
(iv) 8063 + 0 = 8063
(v) 53501 + (574 + 799) = 574 + (53501 + 799)

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ANSWER:

(i) 16509 + 114 = 16623
By reversing the order of the addends, we get:
114 + 16509 = 16623
∴ 16509 + 114 = 114 + 16509

(ii) 2359 + 548 = 2907
By reversing the order of the addends, we get:
548 + 2359 = 2907
∴ 2359 + 548 = 548 + 2359

(iii) 19753 + 2867 = 22620
By reversing the order of the addends, we get:
2867 + 19753 = 22620

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∴ 19753 + 2867 = 2867 + 19753

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ANSWER:

We have:

(1546 + 498) + 3589 = 2044 + 3589 = 5633

Also, 1546 + (498 + 3589) = 1546 + 4087 = 5633

Yes, the two sums are equal.

The associative property of addition is satisfied.

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ANSWER:

(i) 953 + 707 + 647
953 + (707 + 647) (Using associative property of addition)
= 953 + 1354
= 2307

(ii) 1983 + 647 + 217 + 353
(1983 + 647) + (217 +353) (Using associative property of addition)
= 2630 + 570
= 3200

(iii) 15409 + 278 + 691 + 422
(15409 + 278) + (691 + 422) (Using associative property of addition)
= 15687 + 1113
= 16800

(iv) 3259 + 10001 + 2641 + 9999
(3259 + 10001) + (2641 + 9999) (Using associative property of addition)
= 13260 + 12640
= 25900

(v)1 + 2 + 3 + 4 + 96 + 97 + 98 + 99

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(1 + 2 + 3 + 4) + (96 + 97 + 98 + 99) (Using associative property of addition)
= (10) + (390)
= 400

(vi) 2 + 3 + 4 + 5 + 45 + 46 + 47 + 48
(2 + 3 + 4 + 5) + (45 + 46 + 47 + 48) (Using associative property of addition)
= 14 + 186
= 200

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ANSWER:

(i) 6784 + 9999
= 6784 + (10000 − 1)
= (6784 + 10000) − 1 (Using associative property of addition)
= 16784 − 1
= 16783

(ii) 10578 + 99999
= 10578 + (100000 − 1)
= (10578 + 100000) − 1 (Using associative property of addition)
= 110578 − 1
= 110577

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ANSWER:

For any whole numbers *a, b* and *c,* we have:
(*a* + *b*) + *c* = *a* + (*b* + *c*)

Let *a* = 2, *b* = 3 and *c* = 4 [we can take any values for *a, b* and *c*]

LHS = (*a* + *b*) + *c*
= (2 + 3) + 4
= 5 + 4
= 9

RHS = *a* + (*c* + *b*)
= *a* + (*b* + *c*) [∵ Whole numbers follow the commutative law]
= 2 + (3 + 4)

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= 2 + 7
= 9

∴ This shows that associativity (in addition) is one of the properties of whole numbers.

Page No 48:

ANSWER:

In a magic square, the sum of each row is equal to the sum of each column and the sum of each main diagonal. By using this concept, we have:
(i)

4	9	2
3	5	7
8	1	6

(ii)

16	2	12
6	10	14
8	18	4

(iii)

2	15	16	5
9	12	11	6
13	8	7	10
14	3	4	17

(iv)

7	18	17	4
8	13	14	11
12	9	10	15
19	6	5	16

Page No 48:

ANSWER:

(i) F (false). The sum of two odd numbers may not be an odd number. Example: 3 + 5 = 8, which is an even number.

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(ii) T (true). The sum of two even numbers is an even number. Example: 2 + 4 = 6, which is an even number.

(iii) T (true). The sum of an even and an odd number is an odd number. Example: 5 + 4 = 9, which is an odd number.

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ANSWER:

(i) Subtraction: 6237 − 694 = 5543
Addition: 5543 + 694 = 6237

(ii) Subtraction: 21205 − 10899 = 10306
Addition: 10306 + 10899 = 21205

(iii) Subtraction: 100000 − 78987 = 21013
Addition: 21013 + 78987 = 100000

(iv) Subtraction: 1010101 − 656565 = 353536
Addition: 353536 + 656565 = 1010101

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ANSWER:

(i) 917 − *5* = 5*8

$$\begin{array}{r} 917 \\ -\,*5* \\ \hline 5*8 \end{array} \Rightarrow \begin{array}{r} 917 \\ -\,359 \\ \hline 558 \end{array}$$

⇒ 917 − 359 = 558

(ii) 6172 − **69 = 29**

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⇒ 6172 − 3269 = 2903

(iii) 5001003 − **6987 = 484****



⇒ 5001003 − 155987 = 4845016

(iv) 1000000 − ****1 = *7042*



⇒ 1000000 − 29571 = 970429

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ANSWER:

(i) 463 − 9
= 463 − 10 + 1
= 464 − 10
= 454

(ii) 5632 − 99
= 5632 − 100 + 1
= 5633 − 100
= 5533

(iii) 8640 − 999
= 8640 − 1000 + 1
= 8641 − 1000
= 7641

(iv) 13006 − 9999
= 13006 − 10000 + 1
= 13007 − 10000
= 3007

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ANSWER:

Smallest seven-digit number = 1000000
Largest four-digit number = 9999
∴ Their difference = 1000000 − 9999
=1000000 − 10000 + 1
=1000001 − 10000
=990001

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ANSWER:

Money deposited by Ravi = Rs 1,36,000
Money withdrawn by Ravi= Rs 73,129
Money left in his account = money deposited − money withdrawn
= Rs (136000 − 73129)
= Rs 62871

∴ Rs 62,871 is left in Ravi's account.

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ANSWER:

Money withdrawn by Mrs Saxena = Rs 1,00,000
Cost of the TV set = Rs 38,750
Cost of the refrigerator = Rs 23,890
Cost of the jewellery = Rs 35,560
Total money spent = Rs (38750 + 23890 + 35560) = Rs 98200

Now, money left = money withdrawn − money spent
= Rs (100000 − 98200)
= Rs 1800

∴ Rs 1,800 is left with Mrs Saxena.

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ANSWER:

Population of the town = 110500
Increased population = 110500 + 3608 = 114108
Number of persons who died or left the town = 8973
Population at the end of the year = 114108 − 8973 = 105135

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∴ The population at the end of the year will be 105135.

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ANSWER:

(i) $n + 4 = 9$
$\Rightarrow n = 9 - 4 = 5$

(ii) $n + 35 = 101$
$\Rightarrow n = 101 - 35 = 66$

(iii) $n - 18 = 39$
$\Rightarrow n = 18 + 39 = 57$

(iv) $n - 20568 = 21403$
$\Rightarrow n = 21403 + 20568 = 41971$

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ANSWER:

(i) $246 \times 1 = 246$
(ii) $1369 \times 0 = 0$
(iii) $593 \times 188 = 188 \times 593$
(iv) $286 \times 753 = 753 \times 286$
(v) $38 \times (91 \times 37) = 91 \times (38 \times 37)$
(vi) $13 \times 100 \times 1000 = 1300000$
(vii) $59 \times 66 + 59 \times 34 = 59 \times (66 + 34)$
(viii) $68 \times 95 = 68 \times 100 - 68 \times 5$

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ANSWER:

(i) Commutative law in multiplication
(ii) Closure property
(iii) Associativity of multiplication
(iv) Multiplicative identity

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(v) Property of zero
(vi) Distributive law of multiplication over addition
(vii) Distributive law of multiplication over subtraction

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ANSWER:

(i) 647 × 13 + 647 × 7
= 647 × (13 + 7)
= 647 × 20
= 12940 (By using distributive property)

(ii) 8759 × 94 + 8759 × 6
= 8759 × (94 + 6)
= 8759 × 100
= 875900 (By using distributive property)

(iii) 7459 × 999 + 7459
= 7459× (999 + 1)
= 7459 × 1000
= 7459000 (By using distributive property)

(iv) 9870 × 561 − 9870 × 461
= 9870 × (561 − 461)
= 9870 × 100
= 987000 (By using distributive property)

(v) 569 × 17 + 569 × 13 + 569 × 70
= 569 × (17+ 13+ 70)
= 569 × 100
= 56900 (By using distributive property)

(vi) 16825 × 16825 − 16825 × 6825
= 16825 × (16825 − 6825)
= 16825 × 10000
= 168250000 (By using distributive property)

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ANSWER:

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(i) 2 × 1658 × 50
= (2 × 50) × 1658
= 100 × 1658
= 165800

(ii) 4 × 927 × 25
= (4 × 25) × 927
= 100 × 927
= 92700

(iii) 625 × 20 × 8 × 50
= (20 × 50) × 8 × 625
= 1000 × 8 × 625
= 8000 × 625
= 5000000

(iv) 574 × 625 × 16
= 574 × (625 × 16)
= 574 × 10000
= 5740000

(v) 250 × 60 × 50 × 8
= (250 × 8) × (60 × 50)
= 2000 × 3000
= 6000000

(vi) 8 × 125 × 40 × 25
= (8 × 125) × (40 × 25)
= 1000 × 1000
= 1000000

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ANSWER:

(i) 740 × 105
= 740 × (100 + 5)
= 740 × 100 + 740 × 5 (Using distributive law of multiplication over addition)
= 74000 + 3700
= 77700

(ii) 245 × 1008
= 245 × (1000 + 8)

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= 245 × 1000 + 245 × 8 (Using distributive law of multiplication over addition)
= 245000 + 1960
= 246960

(iii) 947 × 96
= 947 × (100 − 4)
= 947 × 100 − 947 × 4 (Using distributive law of multiplication over subtraction)
= 94700 − 3788
= 90912

(iv) 996 × 367
= 367 × (1000 − 4)
= 367 × 1000 − 367 × 4 (Using distributive law of multiplication over subtraction)
= 367000 × 1468
= 365532

(v) 472 × 1097
= 472 × (1000 + 97)
= 472 × 1000 + 472 × 97 (Using distributive law of multiplication over addition)
= 472000 + 45784
= 517784

(vi) 580 × 64
= 580 × (60 + 4)
= 580 × 60 + 580 × 4 (Using distributive law of multiplication over addition)
= 34800 + 2320
= 37120

(vii) 439 × 997
= 439 × (1000 − 3)
= 439 × 1000 − 439 × 3 (Using distributive law of multiplication over subtraction)
= 439000 − 1317
= 437683

(viii) 1553 × 198
= 1553 × (200 − 2)
= 1553 × 200 − 1553 × 2 (Using distributive law of multiplication over subtraction)
= 310600 − 3106
= 307494

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ANSWER:

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Distributive property of multiplication over addition states that $a\ (b + c) = ab + ac$
Distributive property of multiplication over subtraction states that $a\ (b - c) = ab - ac$
(i) 3576 × 9
= 3576 × (10 − 1)
= 3576 × 10 − 3576 × 1
= 35760 − 3576
= 32184

(ii) 847 × 99
= 847 × (100 − 1)
= 847 × 100 − 847 × 1
= 84700 − 847
= 83853

(iii) 2437 × 999
= 2437 × (1000 − 1)
= 2437 × 1000 − 2437 × 1
= 2437000 − 2437
= 2434563

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ANSWER:

(i)

$$\begin{array}{r} 456 \\ \times\ 67 \\ \hline 3206 \quad \text{Multiplication by 7} \\ 27480 \quad \text{Multiplication by 60} \\ \hline 30686 \\ \hline \end{array}$$

458 × 67 = 30686

(ii)

$$\begin{array}{r} 3709 \\ \times\ 89 \\ \hline 33381 \quad \text{Multiplication by 9} \\ 296720 \quad \text{Multiplication by 80} \\ \hline 330101 \\ \hline \end{array}$$

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3709 × 89 = 330101

(iii)

$$\begin{array}{r} 4617 \\ \times 234 \\ \hline 18468 \\ 138510 \\ 923400 \\ \hline 1080378 \end{array}$$

Multiplication by 4
Multiplication by 30
Multiplication by 200

4617 × 234 = 1080378

(iv)

$$\begin{array}{r} 15208 \\ \times 542 \\ \hline 30416 \\ 608320 \\ 7604000 \\ \hline 8242736 \end{array}$$

Multiplication by 2
Multiplication by 40
Multiplication by 500

15208 × 542 = 8242736

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ANSWER:

Largest three-digit number = 999
Largest five-digit number = 99999
∴ Product of the two numbers = 999 × 99999
= 999 × (100000 − 1) (Using distributive law)
= 99900000 − 999
= 99899001

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ANSWER:

Uniform speed of a car = 75 km/h

Distance = speed × time
= 75 × 98
=75 × (100 − 2) (Using distributive law)

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$=75 \times 100 - 75 \times 2$
$=7500 - 150$
$= 7350$ km

∴ The distance covered in 98 h is 7350 km.

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ANSWER:

Cost of 1 VCR set = Rs 24350
Cost of 139 VCR sets = 139×24350
$=24350 \times (140 - 1)$ (Using distributive property)
$=24350 \times 140 - 24350$
$=3409000 - 24350$
= Rs. 3384650

∴ The cost of all the VCR sets is Rs 33,84,650.

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ANSWER:

Cost of construction of 1 house = Rs 450000
Cost of construction of 197 such houses = 197×450000
$= 450000 \times (200 - 3)$
$= 450000 \times 200 - 450000 \times 3$ [Using distributive property of multiplication over subtraction]
$= 90000000 - 1350000$
$= 88650000$

∴ The total cost of construction of 197 houses is Rs 8,86,50,000.

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ANSWER:

Cost of a chair = Rs 1065
Cost of a blackboard = Rs 1645
Cost of 50 chairs = 50×1065 = Rs 53250
Cost of 30 blackboards = 30×1645 = Rs 49350
∴ Total amount of the bill = cost of 50 chairs + cost of 30 blackboards

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= Rs (53250 + 49350)
= Rs 1,02,600

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ANSWER:

Number of student in 1 section = 45
Number of students in 6 sections = 45 × 6 = 270
Monthly charges from 1 student = Rs 1650
∴ Total monthly collection from class VI = Rs 1650 × 270 = Rs 4,45,500

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ANSWER:

If the product of two whole numbers is zero, then one of them is definitely zero.
Example: 0 × 2 = 0 and 0 × 15 = 0

If the product of whole numbers is zero, then both of them may be zero.
i.e., 0 × 0 = 0

Now, 2 × 5 = 10. Here, the product will be non-zero because the numbers to be multiplied are not equal to zero.

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ANSWER:

(i) Sum of two odd numbers is an even number. Example: 3 + 5 = 8, which is an even number.
(ii) Product of two odd numbers is an odd number. Example: 5 × 7 = 35, which is an odd number.
(iii) $a \neq 0$ and $a \times a = a$
Given: $a \times a = a$
$\Rightarrow a = \frac{a}{a} = 1$aa=1, $a \neq 0$

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ANSWER:

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(i)

```
      53
   ------
36 ) 1936
   - 180
   ------
     136
    -108
   ------
      28
   ------
```

Dividend = 1936, Divisor = 36 , Quotient = 53 , Remainder = 28
Check: Divisor × Quotient + Remainder = 36 × 53 + 28
= 1936
=Dividend
Hence, Dividend = Divisor × Quotient + Remainder
Verified.

(ii) 19881 ÷ 47

```
      423
   ------
47 ) 19881
    -188
   ------
     108
    - 94
   ------
     141
    - 141
   ------
       0
   ------
```

Dividend = 19881, Divisor = 47 , Quotient = 423, Remainder = 0
Check: Divisor ×Quotient + Remainder= 47 × 423 + 0
= 19881
=Dividend
Hence, Dividend = Divisor × Quotient + Remainder
Verified.

(iii)

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```
      756
341 ) 257796
     -2387
     ------
       1909
      -1705
      ------
        2046
       -2046
       ------
           0
```

Dividend = 257796 , Divisor = 341 , Quotient = 756 , Remainder = 0
Check : Divisor × Quotient + Remainder = 341 × 756 + 0
= 257796
= Dividend
Hence, Dividend = Divisor × Quotient + Remainder
Verified.

(iv) 612846 ÷ 582

```
      1053
582 ) 612846
     -582
     ------
       3084
      -2910
      ------
        1746
       -1746
       ------
           0
```

Dividend = 612846 , Divisor = 582, Quotient = 1053 , Remainder = 0
Check : Divisor × Quotient + Remainder= 582 × 1053 + 0
= 612846
=Dividend
Hence, Dividend = Divisor × Quotient + Remainder
Verified.

(v) 34419 ÷ 149

Dividend = 34419, Divisor = 149 , Quotient = 231, Remainder = 0
Check : Divisor × Quotient + Remainder = 149 × 231 + 0
= 34419
=Dividend

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Hence, Dividend = Divisor × Quotient + Remainder
Verified.

(vi) 39039 ÷ 1001

$$
\begin{array}{r}
39 \\
1001\overline{)39039} \\
-3003 \\
\hline
9009 \\
-9009 \\
\hline
0 \\
\hline
\end{array}
$$

Dividend = 39039 , Divisor = 1001 , Quotient = 39 , Remainder = 0
Check : Divisor × Quotient + Remainder = 1001 × 39 + 0
= 39039
=Dividend
Hence, Dividend = Divisor × Quotient + Remainder
Verified.

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ANSWER:

(i) 6971 ÷ 47

$$
\begin{array}{r}
148 \\
47\overline{)6971} \\
-47 \\
\hline
227 \\
-188 \\
\hline
391 \\
-376 \\
\hline
15 \\
\hline
\end{array}
$$

Quotient = 148 and Remainder = 15
Check: Divisor × Quotient + Remainder = 47 × 148 + 15
= 6971
= Dividend
∴ Dividend = Divisor × Quotient + Remainder
Verified.

(ii) 4178 ÷ 35

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```
      119
   ____
35 ) 4178
   - 35
   ----
     67
   - 35
   ----
     328
   - 315
   -----
      13
```

Dividend = 119 and Remainder = 13

Check: Divisor × Quotient + remainder = 35 × 119 + 13

= 4178

= Dividend

∴ Dividend= Divisor × Quotient + Remainder

Verified.

(iii) 36195 ÷ 153

```
      236
   ____
153 ) 36195
   - 306
   -----
     559
   - 459
   -----
     1005
   - 918
   -----
      87
```

Quotient = 236 and Remainder = 87

Check: Divisor × Quotient + Remainder = 153 × 236 + 87

= 36195

= Dividend

∴ Dividend= Divisor × Quotient +Remainder

Verified.

(iv) 93575 ÷ 400

```
      233
   ____
400 ) 93575
   - 800
   -----
     1357
   - 1200
   ------
     1575
   - 1200
   ------
      375
```

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Quotient = 233 and Remainder = 375
Check: Divisor × Quotient + Remainder = 400 × 233 + 375
= 93575
= Dividend
∴ Dividend= Divisor × Quotient + Remainder
Verified.

(v) 23025 ÷ 1000

Quotient = 23 and remainder = 25
Check: Divisor × Quotient + Remainder =1000 × 23 + 25
= 23025
= Dividend
∴ Dividend= Divisor × Quotient +Remainder
Verified.
(vi) 16135 ÷ 875

$$
\begin{array}{r}
18 \\
875\overline{)16135} \\
-\,875 \\
\hline
7385 \\
-\,7000 \\
\hline
385
\end{array}
$$

Quotient = 18 and Remainder = 385
Check: Divisor × Quotient + Remainder =875 × 18 + 385
= 16135
= Dividend
∴ Dividend= Divisor × Quotient +Remainder
Verified.

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ANSWER:

(i) 65007 ÷ 1 = 65007

(ii) 0 ÷ 879 = 0

(iii) 981 + 5720 ÷ 10
= 981 + (5720 ÷ 10) (Following DMAS property)
= 981 + 572
= 1553

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(iv) 1507 − (625 ÷ 25) (Following BODMAS property)
= 1507 − 25
= 1482

(v) 32277 ÷ (648 − 39) (Following BODMAS property)
= 32277 ÷ (609)
= 53

(vi) (1573 ÷ 1573) − (1573 ÷ 1573) (Following BODMAS property)
= 1 − 1
= 0

Page No 56:

ANSWER:

Given: n ÷ n = n
⇒ nnnn= n
⇒ $n = n^2$

i.e., the whole number n is equal to n^2.

∴ The given whole number must be 1.

Page No 56:

ANSWER:

Let x and y be the two numbers.

Product of the two numbers = $x \times y$ = 504347

If x = 317, we have:

317 × y = 504347
⇒ y = 504347 ÷ 317

y= 1591

∴ The other number is 1591.

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ANSWER:

Dividend = 59761, quotient = 189, remainder = 37 and divisor = ?

Dividend = divisor × quotient + remainder
⇒ 59761 = divisor × 189 + 37
⇒ 59761 − 37 = divisor × 189
⇒ 59724 = divisor × 189
⇒ Divisor = 59724 ÷ 189

$$
\begin{array}{r}
316 \\
189\overline{)\,59724} \\
-567 \\
\hline
302 \\
-189 \\
\hline
1134 \\
-1134 \\
\hline
0
\end{array}
$$

Hence, divisor =316

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ANSWER:

Here, Dividend = 55390, Divisor = 299 and Remainder = 75
We have to find the quotient.
Now, Dividend = Divisor × Quotient + Remainder
⇒ 55390 = 299 × Quotient + 75
⇒ 55390 − 75 = 299 × Quotient
⇒ 55315 = 299 × Quotient
⇒ Quotient = 55315 ÷ 299

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$$
\begin{array}{r}
185 \\
299\overline{)55315} \\
\underline{-\ 299} \\
2541 \\
\underline{-\ 2392} \\
1495 \\
\underline{-\ 1495} \\
0
\end{array}
$$

Hence, quotient =185

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ANSWER:

First, we will divide 13601 by 87.

$$
\begin{array}{r}
156 \\
87\overline{)13601} \\
\underline{-\ 87} \\
490 \\
\underline{-\ 435} \\
551 \\
\underline{-\ 522} \\
29
\end{array}
$$

Remainder = 29
So, 29 must be subtracted from 13601 to get a number exactly divisible by 87.
i.e., 13601 − 29 = 13572

Now, we have:

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$$
\begin{array}{r}
156 \\
87\overline{)13572} \\
-87 \\
\hline
487 \\
-435 \\
\hline
522 \\
-522 \\
\hline
0
\end{array}
$$

∴ 29 must be subtracted from 13601 to make it divisible by 87.

Page No 56:

ANSWER:

First, we will divide 1056 by 23.

$$
\begin{array}{r}
45 \\
23\overline{)1056} \\
-92 \\
\hline
136 \\
-115 \\
\hline
21
\end{array}
$$

Required number = 23 − 21 = 2
So, 2 must be added to 1056 to make it exactly divisible by 23.
i.e., 1056 + 2 = 1058

Now, we have:

$$
\begin{array}{r}
46 \\
23\overline{)1058} \\
-92 \\
\hline
138 \\
-138 \\
\hline
0
\end{array}
$$

∴ 1058 is exactly divisible by 23.

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ANSWER:

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We have to find the largest four digit number divisible by 16 .
The largest four-digit number = 9999
Therefore, dividend =9999
Divisor =16

$$\begin{array}{r} 62 \\ 16\overline{)\,9999} \\ -\,96 \\ \hline 39 \\ -\,32 \\ \hline 79 \\ -\,64 \\ \hline 15 \end{array}$$

Here, we get remainder =15
Therefore, 15 must be subtracted from 9999 to get the largest four digit number that is divisible by 16.
i.e., 9999 − 15 = 9984

Thus, 9984 is the largest four-digit number that is divisible by 16.

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ANSWER:

Largest five-digit number =99999

Dividend = 99999, Divisor = 653, Quotient = 153 and Remainder = 90
Check: Divisor ×Quotient + Remainder
= 653 × 153 + 90
= 99909 + 90
= 99999
= Dividend

∴ Dividend = Divisor × Quotient + Remainder
Verified.

Page No 56:

ANSWER:

Least six-digit number = 100000
Here, dividend = 100000 and divisor = 83

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In order to find the least 6-digit number exactly divisible by 83, we have to add 83 − 68 = 15 to the dividend.
I.e., 100000 + 15 = 100015

So, 100015 is the least six-digit number exactly divisible by 83.

Page No 56:

ANSWER:

Cost of 1 dozen bananas = Rs 29
Number of dozens purchased for Rs 1392 = 1392 ÷ 29

$$
\begin{array}{r}
48 \\
29\overline{)1392} \\
-116 \\
\hline
232 \\
-232 \\
\hline
0 \\
\hline
\end{array}
$$

Hence, 48 dozen of bananas can be purchased with Rs. 1392.

Page No 56:

ANSWER:

Number of trees planted in 157 rows = 19625
Trees planted in 1 row = 19625 ÷ 157

$$
\begin{array}{r}
125 \\
157\overline{)19625} \\
-157 \\
\hline
392 \\
-314 \\
\hline
785 \\
-785 \\
\hline
0 \\
\hline
\end{array}
$$

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∴ 125 trees are planted in each row.

Page No 56:

ANSWER:

Population of the town = 517530
$(115)115$ of the population is reported to be literate, i.e., $(115)115 \times 517530 = 517530 \div 15$

$$
\begin{array}{r}
34502 \\
15\overline{)517530} \\
-\,45 \\
\hline
67 \\
-\,60 \\
\hline
75 \\
-\,75 \\
\hline
030 \\
-\,30 \\
\hline
0 \\
\hline
\end{array}
$$

∴ There are 34502 illiterate persons in the given town.

Page No 56:

ANSWER:

Cost price of 23 colour TV sets = Rs 5,70,055
Cost price of 1 TV set = Rs 570055 ÷ 23

∴ The cost price of one TV set is Rs 24,785.

Page No 56:

ANSWER:

(b) 0

The smallest whole number is 0.

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ANSWER:

(d) 1008

(a)

$$
\begin{array}{r}
113 \\
9\overline{)1018} \\
-9 \\
\hline
11 \\
-9 \\
\hline
28 \\
-27 \\
\hline
1
\end{array}
$$

Hence, 1018 is not exactly divisible by 9.

(b)

$$
\begin{array}{r}
114 \\
9\overline{)1026} \\
-9 \\
\hline
12 \\
-9 \\
\hline
36 \\
-36 \\
\hline
1
\end{array}
$$

Hence, 1026 is exactly divisible by 9.

(c)

$$
\begin{array}{r}
112 \\
9\overline{)1009} \\
-9 \\
\hline
10 \\
-9 \\
\hline
19 \\
-18 \\
\hline
1
\end{array}
$$

Hence, 1009 is not exactly divisible by 9.

(d)

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$$
\begin{array}{r}
112 \\
9\overline{)1008} \\
-9 \\
\hline
10 \\
-9 \\
\hline
18 \\
-18 \\
\hline
0
\end{array}
$$

Hence, 1008 is exactly divisible by 9.

(b) and (d) are exactly divisible by 9, but (d) is the least number which is exactly divisible by 9.

Page No 57:

ANSWER:

(c) 999984

(a)

Hence, 999980 is not exactly divisible by 16.

(b)

$$
\begin{array}{r}
62498 \\
16\overline{)999982} \\
-96 \\
\hline
39 \\
-32 \\
\hline
79 \\
-64 \\
\hline
158 \\
-144 \\
\hline
142 \\
-128 \\
\hline
14
\end{array}
$$

Hence, 999982 is not exactly divisible by 16.

(c)

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$$
\begin{array}{r}
62499 \\
16\overline{)\,999984} \\
-\,96 \\
\hline
39 \\
-\,32 \\
\hline
79 \\
-\,64 \\
\hline
158 \\
-\,144 \\
\hline
144 \\
-\,144 \\
\hline
0
\end{array}
$$

Hence, 999984 is exactly divisible by 16.

(d)

$$
\begin{array}{r}
62497 \\
16\overline{)\,999964} \\
-\,96 \\
\hline
39 \\
-\,32 \\
\hline
79 \\
-\,64 \\
\hline
156 \\
-\,144 \\
\hline
124 \\
-\,112 \\
\hline
12
\end{array}
$$

Hence, 999964 is not exactly divisible by 16.

The largest six-digit number which is exactly divisible by 16 is 999984.

Page No 57:

ANSWER:

(c) 8

Here we have to tell what least number should be subtracted from 10004 to get a number exactly divisible by 12
So, we will first divide 10004 by 12.

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$$
\begin{array}{r}
833 \\
12\overline{)10004} \\
-96 \\
\hline
40 \\
-36 \\
\hline
44 \\
-36 \\
\hline
8
\end{array}
$$

Remainder = 8
So, 8 should be subtracted from 10004 to get the number exactly divisible by 12.
i.e., 10004 − 8 = 9996

$$
\begin{array}{r}
833 \\
12\overline{)9996} \\
-96 \\
\hline
39 \\
-36 \\
\hline
36 \\
-36 \\
\hline
0
\end{array}
$$

Hence, 9996 is exactly divisible by 12.

Page No 57:

ANSWER:

(a) 18

Here , we have to tell that what least number must be added to 10056 to get a number exactly divisible by 23
So, first we will divide 10056 by 23

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$$
\begin{array}{r}
437 \\
23\overline{)10056} \\
-92 \\
\hline
85 \\
-69 \\
\hline
166 \\
-161 \\
\hline
5
\end{array}
$$

Remainder = 5
Required number = 23 − 5 = 18

So, 18 must be added to 10056 to get a number exactly divisible by 23.
i.e., 10056 + 18 = 10074

$$
\begin{array}{r}
438 \\
23\overline{)10074} \\
-92 \\
\hline
87 \\
-69 \\
\hline
184 \\
-184 \\
\hline
0
\end{array}
$$

Hence, 10074 is exactly divisible by 23 .

Page No 57:

ANSWER:

(d) 462

(a)

$$
\begin{array}{r}
4 \\
11\overline{)450} \\
-44 \\
\hline
10
\end{array}
$$

Hence, 450 is not divisible by 11.

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(b)

$$\begin{array}{r} 41 \\ 11\overline{)\,451} \\ -\,44 \\ \hline 11 \\ -\,11 \\ \hline 0 \end{array}$$

Hence, 451 is divisible by 11.

(c)

$$\begin{array}{r} 41 \\ 11\overline{)\,460} \\ -\,44 \\ \hline 20 \\ -\,11 \\ \hline 9 \end{array}$$

Hence, 460 is not divisible by 11.

(d)

$$\begin{array}{r} 42 \\ 11\overline{)\,462} \\ -\,44 \\ \hline 22 \\ -\,22 \\ \hline 0 \end{array}$$

Hence, 462 is divisible by 11.

Here, the numbers given in options (b) and (d) are divisible by 11. However, we want a whole number nearest to 457 which is divisible by 11.
So, 462 is whole number nearest to 457 and divisible by 11.

Page No 57:

ANSWER:

(c) 184

Number of whole numbers = (1203 − 1018) − 1
= 185 − 1
= 184

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ANSWER:

(b) 521

Divisor = 46
Quotient = 11
Remainder = 15
Dividend = divisor × quotient + remainder
= 46 × 11 + 15
= 506 + 15
= 521

Page No 57:

ANSWER:

(c) 12

Dividend = 199
Quotient = 16
Remainder = 7
According to the division algorithm, we have:
Dividend = divisor × quotient + remainder
⇒ 199 = divisor × 16 + 7
⇒ 199 − 7 = divisor × 16
⇒ Divisor = 192 ÷ 16

Page No 57:

ANSWER:

(a) 11023

7589 − ? = 3434
⇒ 7589 − x = 3434
⇒ x = 7589 + 3434
⇒ x = 11023

Page No 57:

ANSWER:

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(c) 58113

587 × 99
= 587 × (100 − 1)
= 587 × 100 − 587 × 1 [Using distributive property of multiplication over subtraction]
= 58700 − 587
= 58113

Page No 57:

ANSWER:

(c) 53800

4 × 538 × 25
= (4 × 25) × 538
= 100 × 538
= 53800

Page No 57:

ANSWER:

(c) 2467900

By using the distributive property, we have:
24679 × 92 + 24679 × 8
= 24679 × (92 + 8)
= 24679 × 100
= 2467900

Page No 57:

ANSWER:

(a) 1625000

By using the distributive property, we have:

1625 × 1625 − 1625 × 625
= 1625 × (1625 − 625)
=1625 × 1000
= 1625000

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Page No 57:

ANSWER:

(c) 156800

By using the distributive property, we have:
1568 × 185 − 1568 × 85
= 1568 × (185 − 85)
= 1568 × 100
= 156800

Page No 57:

ANSWER:

(c) 20

(888 + 777 + 555) = (111 × ?)
⇒ (888 + 777 + 555) = 111 × (8 + 7 + 5) [By taking 111 common]
= 111 × (20) = 2220

Page No 57:

ANSWER:

(b) an even number

The sum of two odd numbers is an even number.

Example: 5 + 3 = 8

Page No 57:

ANSWER:

(a) an odd number

The product of two odd numbers is an odd number.

Example: 5 × 3 = 15

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ANSWER:

(d) none of these

Given: a is a whole number such that $a + a = a$.

If $a = 1$, then $1+ 1 = 2 \neq 1$
If $a = 2$, then $2 + 2 = 4 \neq 2$
If $a = 3$, then $3 + 3 = 6 \neq 3$

Page No 57:

ANSWER:

(b) 9999

Predecessor of 10000 = 10000 − 1 = 9999

Page No 57:

ANSWER:

(b) 1002

Successor of 1001 = 1001 + 1 = 1002

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ANSWER:

(b) 2

The smallest even whole number is 2. Zero (0) is neither an even number nor an odd number.

Page No 59:

ANSWER:

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Number of whole numbers between 1201 and 1064 = (1201 − 1064) − 1
= 137 − 1
= 136

Page No 59:

ANSWER:

1000000
− ****1
_____
7042

Then, we have:

1000000
− 29571
_____
970429

Page No 59:

ANSWER:

Using distributive law, we have:
1063 × 128 − 1063 × 28
= 1063 × (128 − 28)
= 1063 × 100
= 106300

Page No 59:

ANSWER:

Largest five-digit number = 99999
Largest three-digit number = 999

By using distributive law, we have:

Product = 99999 × 999
= 99999 × (1000 − 1) [By using distributive law]
= 99999 × 1000 − 99999 × 1
= 99999000 − 99999

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= 99899001

OR

999 × 99999
= 999 × (100000 − 1) [By using distributive law]
= 999 × 100000 − 999 × 1
= 99900000 − 999
= 99899001

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ANSWER:



Dividend = 53968, Divisor = 267, Quotient = 202 and Remainder = 34

Check: Quotient × Divisor + Remainder
= 267 × 202 + 34
= 53934 + 34
= 53968
= Dividend

∴ Dividend = Quotient × Divisor + Remainder

Verified.

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ANSWER:

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Largest six-digit number = 999999

$$
\begin{array}{r}
62499 \\
16\overline{)999999} \\
-96 \\
\hline
39 \\
-32 \\
\hline
79 \\
-64 \\
\hline
159 \\
-144 \\
\hline
159 \\
-144 \\
\hline
15 \\
\hline
\end{array}
$$

Remainder = 15

Largest six-digit number divisible by 16 = 999999 − 15 = 999984

$$
\begin{array}{r}
62499 \\
16\overline{)999984} \\
-96 \\
\hline
39 \\
-32 \\
\hline
79 \\
-64 \\
\hline
158 \\
-144 \\
\hline
144 \\
-144 \\
\hline
0 \\
\hline
\end{array}
$$

∴ 999984 is divisible by 16.

Page No 59:

ANSWER:

Cost price of 23 TV sets = Rs 5,70,055
Cost price of 1 TV set = 570055 ÷ 23

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$$
\begin{array}{r}
24785 \\
23\overline{)570055} \\
-46 \\
\hline
110 \\
-92 \\
\hline
180 \\
-161 \\
\hline
195 \\
-184 \\
\hline
115 \\
-115 \\
\hline
0
\end{array}
$$

∴ The cost of one TV set is Rs 24,785.

Page No 59:

ANSWER:

We have to find the least number that must be subtracted from 13801 to get a number exactly divisible by 87
So, first we will divide 13801 by 87

$$
\begin{array}{r}
158 \\
87\overline{)13801} \\
-87 \\
\hline
510 \\
-435 \\
\hline
751 \\
-696 \\
\hline
55
\end{array}
$$

Remainder = 55
The number 55 should be subtracted from 13801 to get a number divisible by 87.
i.e., 13801 − 55 = 13746

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$$
\begin{array}{r}
158 \\
87\overline{)13746} \\
-87 \\
\hline
504 \\
-435 \\
\hline
696 \\
-696 \\
\hline
0
\end{array}
$$

∴ 13746 is divisible by 87.

Page No 59:

ANSWER:

(b) 8900

(89 × 76 + 89 × 24)
= 89 × (76 + 24) [Using distributive property of multiplication over addition]
= 89 × 100
= 8900

Page No 59:

ANSWER:

(c) 429

Divisor = 53, Quotient = 8, Remainder = 5 and Dividend = ?

Now, Dividend = Quotient × Divisor +Remainder
= 8 × 53 + 5
= 429

Page No 59:

ANSWER:

(b) 0

The whole number which has no predecessor is 0.

i.e., 0 − 1 = −1, which is not a whole number.

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Page No 59:

ANSWER:

(c) Commutative property

67 + 33 = 33 + 67 is an example of commutative property of addition.

Page No 59:

ANSWER:

(c) -36
The additive inverse of 36 is −36.

i.e., 36 + (−36) = 0

Page No 59:

ANSWER:

(d) 2+0

(a) 0 × 0 = 0
(b) 0/2 = 0
(c) $(8-8)2=028-82=02=0$
(d) 2 + 0 = 2

Page No 59:

ANSWER:

(d) 99

Smallest three-digit number = 100
∴ Predecessor of 100 = 100 − 1 = 99

Page No 59:

ANSWER:

(b) 98
Smallest whole number = 0

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Greatest two-digit number = 99
Number of whole numbers between 0 and 99 = (99 − 0) − 1 = 98

Page No 59:

ANSWER:

(i) The smallest natural number is 1.
(ii) The smallest whole number is 0.
(iii) Division by 0 is not defined.
(iv) 0 is a whole number which is not a natural number.
(v) 1 is the multiplicative identity for whole numbers.

Page No 60:

ANSWER:

(i) F (false). 0 is not a natural number.
(ii) T (true).
(iii) F (false). 0 is a whole number but not a natural number.
(iv) F (false). 1 − 1 = 0 is a predecessor of 1, which is a whole number.

Page No 60:

ANSWER:

Column A	Column B
(a) 137 + 63 = 63 + 137	(iv) Commutativity of addition
(b) (16 × 25) is a number	(v) Closure property for multiplication
(c) 365 × 18 = 18 × 365	(ii) Commutativity of multiplication
(d) (86 × 14) × 25 = 86 × (14 × 25)	(i) Associativity of multiplication
(e) 23 × (80 + 5) = (23 × 80) + (23 × 5)	(iii) Distributive law of multiplication over addition

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