

Whole Numbers

Exercise-2.1

1. the smallest whole number is 1 and there is no largest whole number.

Solution-02:

(i) 3999

Successor is 1 more than the given number

$$\begin{aligned}\text{The successor of } 3999 &= 3999 + 1 \\ &= 4000.\end{aligned}$$

(ii) 378915

$$\begin{aligned}\text{the successor of } 378915 &= 378915 + 1 \\ &= 378916.\end{aligned}$$

(iii) 5001299

$$\begin{aligned}\text{the successor of } 5001299 &= 5001299 + 1 \\ &= 5001300.\end{aligned}$$

Solution-03:

Predecessor is less than the given number

(i) 500

$$\begin{aligned}\text{Predecessor of } 500 &= 500 - 1 \\ &= 499.\end{aligned}$$

$$\begin{aligned}\text{(ii) the predecessor of } 38794 &= 38794 - 1 \\ &= 38793.\end{aligned}$$

$$\begin{aligned}\text{(iii) the predecessor of } 8300000 &= 8300000 - 1 \\ &= 8300999.\end{aligned}$$

Solution 04:-

$$\begin{aligned} \text{(i) Successor of } 50795 \text{ is} &= 50795 + 1 \\ &= 50796 \end{aligned}$$

$$\begin{aligned} \text{(ii) Successor of } 72030075 &= 72030075 + 1 \\ &= 72030076 \end{aligned}$$

$$\begin{aligned} \text{(iii) Successor of } 8300000 \text{ is} &= 8300000 + 1 \\ &= 8300001 \end{aligned}$$

Solution-05:

$$\begin{aligned} \text{(i) Predecessor of } 5347 \text{ is} &= 5347 - 1 \\ &= 5346 \end{aligned}$$

$$\begin{aligned} \text{(ii) Predecessor of } 72399 \text{ is} &= 72399 - 1 \\ &= 72398 \end{aligned}$$

$$\begin{aligned} \text{(iii) Predecessor of } 3012999 \text{ is} &= 3012999 - 1 \\ &= 3012998 \end{aligned}$$

Solution-06:

(i) the next three consecutive whole numbers of 79 are 80, 81, 82.

(ii) the next three consecutive whole numbers of 598 are 599, 600, 601.

(iii) the next three ^{consecutive whole} numbers of 35669 are 35670, 35671, 35672.

Solution-07

The three consecutive whole numbers occurring just before 320001 are 320000, 321999, 321998.

Solution-08.

(i) The whole numbers between 38 and 68 are ~~38~~ 39, 40, 41, , 67, ~~68~~.

$$\begin{aligned}\text{Number of those numbers} &= 67 - 38 \\ &= 29.\end{aligned}$$

Note that in the above list, 67 is included and 38 is not included.

(ii) The whole numbers between 99 and 300 are 100, 101, 102, 103, , 298, 299.

$$\begin{aligned}\text{Number of those numbers} &= 299 - 99 \\ &= 200.\end{aligned}$$

Solution-09

Whole numbers between 100 and 200 which do not change if the digits are written in the reverse order

101, 111, 121, 131, 141, 151, 161, 171, 181, 191.

Solution-10:

Whole numbers (2 digit) between 5 and 92 are

10, 11, 12, 13, 14, , 90, 91.

$$\begin{aligned}\text{Number of those numbers} &= 92 - 10 \\ &= 82\end{aligned}$$

Solution-11:

3 digit whole numbers between 72 and 407 are

100, 101, 102, 103, , 406.

$$\begin{aligned}\text{Number of those numbers} &= 407 - 100 \\ &= 307.\end{aligned}$$

Exercise- 2.2.

Solution-01.

(i) $378 + 1024 = 1024 + \underline{378}$

(ii) $337 + (528 + 1164) = (337 + \underline{528}) + 1164$

(iii) $(21 + 18) + \underline{13} = (21 + 13) + 18$

(iv) $3056 + 0 = \cancel{0} \underline{3056} = 0 + 3056.$

Solution-02:

(i) $3189 + 53885$

$$\begin{array}{r} 3189 \\ 53885 \\ \hline 57074 \end{array}$$

$3189 + 53885 = 57074.$

$$\begin{array}{r} 53885 \\ 3189 \\ \hline 57074 \end{array}$$

$3189 + 53885 = 53885 + 3189$

(ii) $33789 + 50311$

$$\begin{array}{r} 33789 \\ 50311 \\ \hline 84100 \end{array}$$

$$\begin{array}{r} 50311 \\ 33789 \\ \hline 84100 \end{array}$$

$33789 + 50311 = 50311 + 33789.$

Solution -03:-

$$\begin{aligned} \text{(i)} \quad 311 + 528 + 289 &= (311 + 528) + 289 \\ &= (839) + 289 \\ &= 1128 \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad 723 + 834 + 66 + 277 &= (723 + 834) + (66 + 277) \\ &= (1557) + (343) \\ &= 1900 \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad 78 + 203 + 435 + 7197 + 422 \\ &= (78 + 203) + (435 + 422) + 7197 \\ &= (281) + (857) + 7197 \\ &= (281 + 857) + 7197 \\ &= 1138 + 7197 \\ &= 8335 \end{aligned}$$

Solution -04

$$\text{(i)} \quad 375 \times 57 = 57 \times 375$$

$$\text{(ii)} \quad (33 \times 16) \times 25 = 33 \times (16 \times 25)$$

$$\text{(iii)} \quad 37 \times 24 = 37 \times 18 + 37 \times 6$$

$$\text{(iv)} \quad 7205 \times 1 = 7205 = 1 \times 7205$$

$$\text{(v)} \quad 366 \times 0 = 0$$

$$\text{(vi)} \quad 0 \times 579 = 0$$

$$\text{(vii)} \quad 473 \times 108 = 473 \times 100 + 473 \times 8$$

$$\text{(viii)} \quad 684 \times 97 = 684 \times 100 - 684 \times 3$$

$$\text{(ix)} \quad 0 \div 5 = 0$$

$$\text{(x)} \quad (14 - 14) \div 7 = 0$$

Solution - 05:

$$\begin{aligned} \text{(i)} \quad 4 \times 528 \times 25 &= (4 \times 25) \times 528 \\ &= 100 \times 528 \\ &= 52800 \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad 625 \times 239 \times 16 &= (625 \times 16) \times 239 \\ &= 10000 \times 239 \\ &= 2390000. \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad 125 \times 40 \times 8 \times 25 &= (125 \times 40) \times (8 \times 25) \\ &= 5000 \times 200 \\ &= 10,00,000 \end{aligned}$$

Solution - 06:

$$\begin{aligned} \text{(i)} \quad 54279 \times 92 + 54279 \times 8 &= 54279(92+8) \\ &= 54279 \times 100 \\ &= 5427900. \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad 60678 \times 262 - 60678 \times 162 &= 60678(262-162) \\ &= 60678(100) \\ &= 6067800. \end{aligned}$$

(vi) Solution - 07:

$$\begin{aligned} \text{(i)} \quad 739 \times 102 &= 739(100+2) \\ &= 739 \times 100 + 739 \times 2 \\ &= 73900 + 1478 \\ &= 75378. \end{aligned}$$

Solution 07(ii) :-

$$\begin{aligned}1938 \times 99 &= 1938 (100-1) \\ &= 1938 \times 100 - 1938 \\ &= 193800 - 1938 \\ &= 191862\end{aligned}$$

Solution 08:-

By Actual division,

we have

$$\text{Dividend} = 7750$$

$$\text{divisor} = 17$$

$$\text{quotient} = 444$$

$$\text{Remainder} = 2$$

$$\begin{array}{r}17 \overline{) 7750} \quad (444 \\ \underline{68} \\ 15 \\ \underline{68} \\ 70 \\ \underline{68} \\ 2\end{array}$$

Check :

$$\text{divisor} \times \text{quotient} + 2$$

$$= 17 \times 444 + 2$$

$$= 7748 + 2$$

$$= 7750$$

Solution 09:-

Let the number dividend be 'D'

$$D = \text{divisor} \times \text{quotient} + \text{Remainder}$$

$$= 38 \times 23 + 17$$

$$= 874 + 17$$

$$= 891.$$

Solution -10.

Let the number be 'Q'

$(1000 - Q) \div \dots$ should be divisible by 35
 35

first will divided 1000 by 35

$$\begin{array}{r} 35 \overline{) 1000} \quad (28 \\ \underline{70} \\ 300 \\ \underline{280} \\ 20 \end{array}$$

\therefore 20 should be subtracted from 1000 so that the difference can be divisible by 35.

Solution -11

$$\begin{array}{r} 53 \overline{) 1000} \quad (18 \\ \underline{53} \\ 470 \\ \underline{424} \\ 46 \end{array}$$

\therefore number which should be Added to 1000 so that it can be exactly divisible by 53 is

$$53 - 46 = 7.$$

\therefore Required number is '7'.

Solution-12.

Largest three digit number 999.

We divide 999 by 47 and find the remainder

$$\begin{array}{r} 47 \overline{) 999} \text{ (1)} \\ \underline{47} \\ 429 \\ \underline{423} \\ 6 \end{array}$$

$$\begin{array}{r} 47 \overline{) 999} \text{ (2)} \\ \underline{94} \\ 59 \\ \underline{47} \\ 12 \end{array}$$

\therefore The largest three digit number which should be divisible by 47 is 987.

$$\therefore \text{Req. Number } 999 - 12 = 987$$

Solution-13.

Smallest 5 digit number = 10000.

will divide 10000 by 254

$$\begin{array}{r} 254 \overline{) 10000} \text{ (3)} \\ \underline{762} \\ 2380 \\ \underline{2286} \\ 94 \end{array}$$

\therefore The smallest five digit number which should be divisible by 254 is 10160.

$$\begin{aligned} \therefore \text{Required number} &= 10254 - 94 \\ &= 10160. \end{aligned}$$

Solution-14:

Milk supplies in the morning = 72 Litre

" " " " Evening = 28 Litre.

Total milk supplied in the day = $72 + 28$
= 100 Litre.

Milk cost per Litre is ₹39 then

Total cost = ₹39 × 100

= ₹3,900/-

Solution-15:

(i) True

(ii) True

(iii) False.

Solution-16:

$$\begin{array}{r} (i) \quad 356 \\ * 6 * \\ \hline * 9 \end{array}$$

$$\begin{array}{r} 3 \quad 5 \quad 6 \\ * 6 * \\ \hline * 9 \end{array}$$

$$\begin{array}{r} 3 \quad 5 \quad 6 \\ 2 \quad 6 \quad 7 \\ \hline 8 \quad 9 \end{array}$$

$$\begin{array}{r}
 \text{(ii)} \quad 6 \ 5 \ 0 \ 0 \\
 * \ 0 \ * \ 5 \\
 \hline
 4 \ * \ 5 \ 7
 \end{array}$$

$$\begin{array}{r}
 6 \ 5 \ 0 \ 2 \\
 * \ 0 \ * \ 5 \\
 \hline
 4 \ * \ 5 \ 7
 \end{array}$$

$$\begin{array}{r}
 6 \ 5 \ 0 \ 2 \\
 * \ 0 \ 4 \ 5 \\
 \hline
 4 \ * \ 5 \ 7
 \end{array}$$

$$\begin{array}{r}
 6 \ 5 \ 0 \ 2 \\
 2 \ 0 \ 4 \ 5 \\
 \hline
 4 \ 4 \ 5 \ 7
 \end{array}$$

$$\begin{array}{r}
 \text{(iii)} \quad 1 \ 7 \ 0 \ 0 \ * \ 4 \\
 8 \ * \ * \ 4 \ 7 \\
 \hline
 * \ 8 \ 6 \ 6 \ *
 \end{array}$$

$$\begin{array}{r}
 1 \ 7 \ 0 \ 0 \ 1 \ 4 \\
 8 \ 1 \ 3 \ 4 \ 7 \\
 \hline
 8 \ 8 \ 6 \ 6 \ 7
 \end{array}$$

Exercise- 2.3

Solution-01:-

$$\begin{aligned} \text{(i)} \quad 3246 + 9999 &= 3246 + 10000 - 1 \\ &= 13246 - 1 \\ &= 13245 \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad 7501 + 9999 &= 7500 + 1 + 9999 \\ &= 7500 + 10000 \\ &= 17500. \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad 5377 - 999 &= 5378 - 1 - 999 \\ &= 5378 - 1000 \\ &= 4378 \end{aligned}$$

$$\begin{aligned} \text{(iv)} \quad 25718 - 9999 &= 25719 - 1 - 9999 \\ &= 25719 - 10000 \\ &= 15719. \end{aligned}$$

$$\begin{aligned} \text{(v)} \quad 123 \times 999 &= 123 \times (1000 - 1) \\ &= 123 \times 1000 - 123 \times 1 \\ &= 123000 - 123 \\ &= 122877. \end{aligned}$$

$$\begin{aligned} \text{(vi)} \quad 203 \times 9999 &= 203 \times (10000 - 1) \\ &= 203 \times 10000 - 203 \times 1 \\ &= 2030000 - 203 \\ &= \begin{array}{r} 2030000 \\ - \quad 203 \\ \hline 2027997 \end{array} \end{aligned}$$

Solution-02:

(i) 9th square number is $= 9 \times 9$
 $= 81$

(ii) 5th triangular number $= 15$ $[1+2+3+4+5]$

6th triangular number $= 15+6$ $[1+2+3+4+5+6]$
 $= 21$

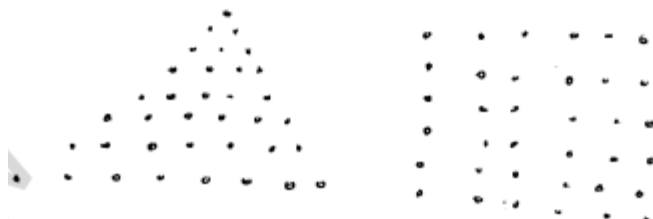
7th triangular number $= 21+7$
 $= 28$

Solution-03

(i) Yes; 9 is a square as well as rectangular number



(ii) yes, 8th triangular number is $= 28+8$
 $= 36$



36
6th

$$4. \quad 1 \times 9 + 1 = 10$$

$$12 \times 9 + 2 = 100$$

$$123 \times 9 + 3 = 1110$$

$$1234 \times 9 + 4 = 11110$$

$$12345 \times 9 + 5 = 111110$$

Solution 05:

$$\cancel{98765}x$$

$$9 \times 9 + 1 = 88$$

$$99 \times 9 + 6 = 888$$

$$999 \times 9 + 5 = 8888$$

$$9999 \times 9 + 4 = 88888$$

$$99999 \times 9 + 3 = 888888$$

_____ x _____