EXERCISE 4.1   **PAGE: 4.4**

1. Fill in the blanks to make each of the following a true statement:
(i) 359 + 476 = 476 + …..
(ii) …. + 1952 = 1952 + 2008
(iii) 90758 + 0 = ….
(iv) 54321 + (489 + 699) = 489 + (54321 + …..)
Solution:

(i) 359 + 476 = 476 + 359 using commutativity

(ii) 2008 + 1952 = 1952 + 2008 using commutativity

(iii) 90758 + 0 = 90758 using the additive identity

(iv) 54321 + (489 + 699) = 489 + (54321 + 699) using associativity

2. Add each of the following and check by reversing the order of addends:
(i) 5628 + 39784
(ii) 923584 + 178
(iii) 15409 + 112
(iv) 2359 + 641
Solution:

(i) We get
5628 + 39784 = 45412
By reversing the order of addends
39784 + 5628 = 45412

(ii) We get
923584 + 178 = 923762
By reversing the order of addends
178 + 923584 = 923762

(iii) We get
15409 + 112 = 15521
By reversing the order of addends
112 + 15409 = 15521

(iv) We get
2359 + 641 = 3000
By reversing the order of addends
641 + 2359 = 3000

3. Determine the sum by suitable rearrangements:
(i) 953 + 407 + 647
(ii) 15409 + 178 + 591 + 322
(iii) 2359 + 10001 + 2641 + 9999
(iv) 1 + 2 + 3 + 4 + 1996 + 1997 + 1998 + 1999
(v) 10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20

Solution:

(i) 953 + 407 + 647
We know that
53 + 47 = 100
It can be written as
(953 + 647) + 407 = 1600 + 407
On further calculation
(953 + 647) + 407 = 2007

(ii) 15409 + 178 + 591 + 322
We know that
409 + 91 = 500 and 78 + 22 = 100
It can be written as
(15409 + 591) + (178 + 322) = 16000 + 500
On further calculation
(15409 + 591) + (178 + 322) = 16500

(iii) 2359 + 10001 + 2641 + 9999
We know that
59 + 41 = 100 and 99 + 01 = 100
It can be written as
(2359 + 2641) + (10001 + 9999) = 5000 + 20000
On further calculation
(2359 + 2641) + (10001 + 9999) = 25000

(iv) 1 + 2 + 3 + 4 + 1996 + 1997 + 1998 + 1999
We know that
99 + 1 = 100, 98 + 2 = 100, 97 + 3 = 100 and 96 + 4 = 100
It can be written as
(1 + 1999) + (2 + 1998) + (3 + 1997) + (4 + 1996) = 2000 + 2000 + 2000 + 2000
On further calculation
(1 + 1999) + (2 + 1998) + (3 + 1997) + (4 + 1996) = 8000

(v) 10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20
We know that
10 + 20 = 30, 1 + 9 = 10, 2 + 8 = 10, 3 + 7 = 10 and 4 + 6 = 10
It can be written as
(10 + 20) + (11 + 19) + (12 + 18) + (13 + 17) + (14 + 16) = 30 + 30 + 30 + 30 + 30 + 15
On further calculation
(10 + 20) + (11 + 19) + (12 + 18) + (13 + 17) + (14 + 16) = 150 + 15 = 165

4. Which of the following statements are true and which are false:
(i) The sum of two odd numbers is an odd number.
(ii) The sum of two odd numbers is an even number.
(iii) The sum of two even numbers is an even number.
(iv) The sum of two even numbers is an odd number.
(v) The sum of an even number and an odd number is an odd number.
(vi) The sum of an odd number and an even number is an even number.
(vii) Every whole number is a natural number.

(viii) Every natural number is a whole number.
(ix) There is a whole number which when added to a whole number, gives that number.
(x) There is a natural number which when added to a natural number, gives that number.
(xi) Commutativity and associativity are properties of whole numbers.
(xii) Commutativity and associativity are properties of addition of whole numbers.
Solution:

(i) False. We know that, 1 + 3 = 4 where 4 is an even number.

(ii) True. We know that, 5 + 7 = 12 where 12 is an even number.

(iii) True. We know that, 2 + 4 = 6 where 6 is an even number.

(iv) False. We know that, 4 + 6 = 10 where 10 is an even number.

(v) True. We know that, 2 + 1 = 3 where 3 is an odd number.

(vi) False. We know that, 3 + 2 = 5 where 5 is an odd number.

(vii) False. Whole number starts from 0 whereas natural numbers start from 1.

(viii) True. All the natural numbers are also whole number.

(ix) True. We know that, 1 + 0 = 1 where 1 is a whole number.

(x) False. We know that 2 + 1 = 3 which is not that number.

(xi) False. Commutativity and associativity are not properties of whole numbers.

(xii) True. Commutativity and associativity are properties of addition of whole numbers.