

Chapter-4

Operations on Whole Numbers

Exercise 4.1

Q.1 Fill in the blanks to make each of the following a true statement.

(i) $359 + 476 = 476 + \dots$ (ii) $\dots + 1952 = 1952 + 2008$

(iii) $90758 + 0 = \dots$

(iv) $54321 + (489 + 699)$
 $= 489 + (54321 + \dots)$

Solution (i) $359 + 476 = 476 + \underline{359}$ (Commutative law)

(ii) $\underline{2008} + 1952 = 1952 + 2008$ (Commutative law)

(iii) $90758 + 0 = \underline{90758}$ (Additive Identity)

(iv) $54321 + (489 + 699) = 489 + (54321 + \underline{699})$
 (Associative Property)

Q.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) $5628 + 39784 = 45412$

By reversing the order of addends, we get

$$39784 + 5628 = 45412$$

$$(ii) \quad 923584 + 178 = 923762$$

By reversing addends, we get

$$178 + 923584 = 923762$$

$$(iii) \quad 15409 + 112 = 15521$$

By reversing addends, we get

$$112 + 15409 = 15521$$

$$(iv) \quad 2359 + 641 = 3000$$

By reversing addends, we get

$$641 + 2359 = 3000$$

Q.3 Determine the sum by suitable rearrangements

$$(i) \quad 953 + 407 + 647 \quad (ii) \quad 15409 + 178 + 591 + 322$$

$$(iii) \quad 2359 + 10001 + 2641 + 9999$$

$$(iv) \quad 1 + 2 + 3 + 4 + 1996 + 1997 + 1998 + 1999$$

$$(v) \quad 10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20$$

Solution (i) $953 + 407 + 647$

By Rearrangement

$$(953 + 647) + 407$$

$$= 1600 + 407 = 2007$$

$$(ii) \quad 15409 + 178 + 591 + 322$$

By Rearranging

$$= (15409 + 591) + (178 + 322)$$

$$= 16000 + 500 = 16500$$

$$(iii) \quad 2359 + 10001 + 2641 + 9999$$

By Rearranging, we get

$$(2359 + 2641) + (10001 + 9999)$$

$$= 5000 + 20000$$

$$= 25000$$

$$(iv) \quad 1 + 2 + 3 + 4 + 1996 + 1997 + 1998 + 1999$$

By Rearranging, we get

$$= (1 + 1999) + (2 + 1998) + (3 + 1997) + (4 + 1996)$$

$$= 2000 + 2000 + 2000 + 2000$$

$$= 8000$$

$$(v) \quad 10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20$$

By Rearranging terms, we get

$$= (10 + 20) + (11 + 19) + (12 + 18) + (13 + 17) + (14 + 16) + 15$$

$$= 30 + 30 + 30 + 30 + 30 + 15$$

$$= 150 + 15$$

$$= 165$$

Q.4 Which of the following statements are true and which are false?

(1) The sum of two odd numbers is an odd number

- (i) The sum of two odd numbers is an even number.
- (ii) The sum of two even numbers is an even number.
- (iii) The sum of two even numbers is an odd number.
- (iv) The sum of an even number and an odd number is an odd number.
- (v) The sum of an odd number and an even number is an even number.
- (vi) Every whole number is a natural number.
- (vii) Every natural number is a whole number.
- (viii) There is a whole number which when added to a whole number, gives that number.
- (ix) There is a natural number which when added to a natural number gives that number.
- (x) Commutativity and associativity are properties of whole numbers.
- (xi) Commutativity and associativity are properties of addition of whole numbers.

Solution (i) False (ii) True (iii) False (iv) False

(v) True (vi) False (vii) False (viii) True

(ix) True (x) False (xi) False (xii) True.