(iv) $350 - (-18)$

$= 350 + 18 = 368$

(v) $-87 - (-13)$

$= -87 + 13 = -74$

(vij) $-825 + (-75) - (+25)$

$= -825 - 75 - 25$

$= -825 - 100 = -925$

(vii) $1 + 2 - 3 + 4 - 5 + 6 - 7 + 8$

$= 1 + 2 + 4 + 6 + 8 - 3 - 5 - 7$

$= 21 - 15 = 6$

(viii)

$0 - 1 + 2 - 3 + 4 - 5 + 6 - 7 + 8$

$= 0 + 2 + 4 + 6 + 8 - 1 - 3 - 5 - 7$

$= 20 - 16 = 4$

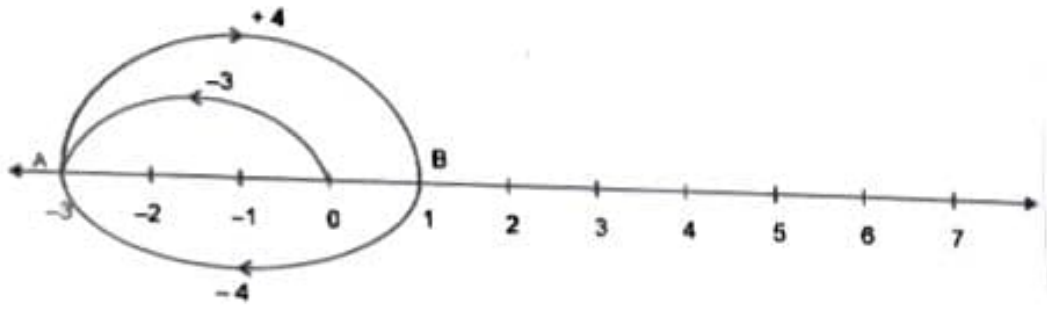
(7)

(i) Additive inverse of -13 is 13.

So, $-13 + 13 = 0$

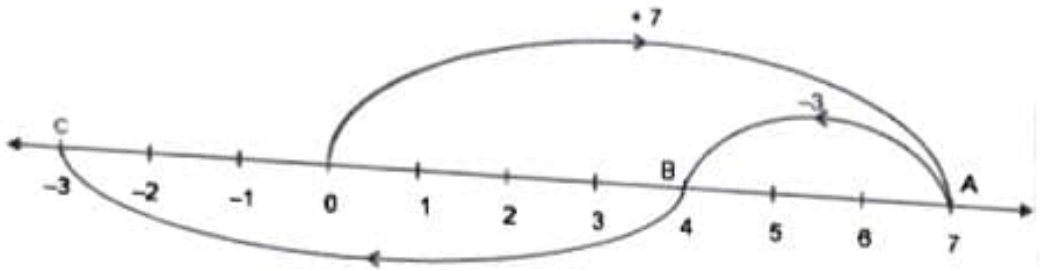
(iii) $-3, 4$ and -4

$-3+4+(-4) = -3+4-4 = -3$



(iv) $7, -3$ and -7

$7+(-3)+(-7) = 7-3-7 = -3$



(3)

(i) -205 and 340

$-205+340 = 135$

(ii) 100 and -99

$100-99 = 1$

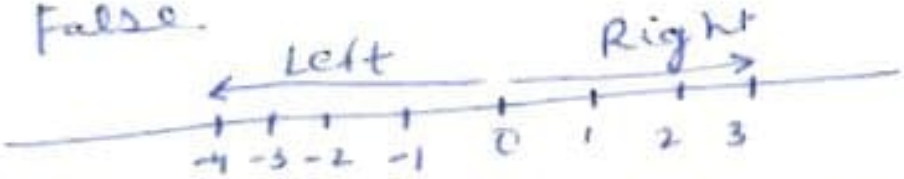
(iii) -5791 and -327

$-5791+(-327) = -5791-327 = -6118$

(4)

(vii) True

(viii) False.



On the number line, -1 lies to the left of 0.

(ix) False

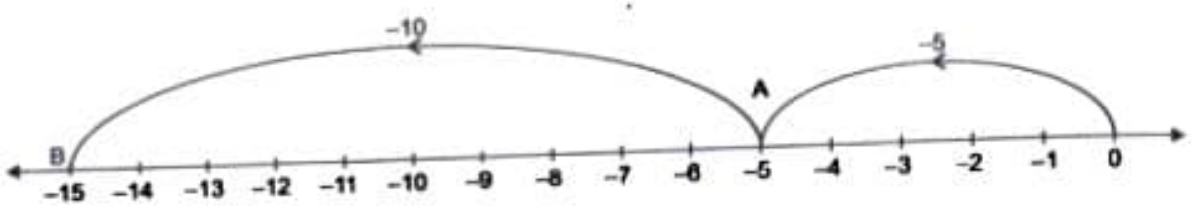
$-49 + 51 = 2$

(x) True.

② Add:

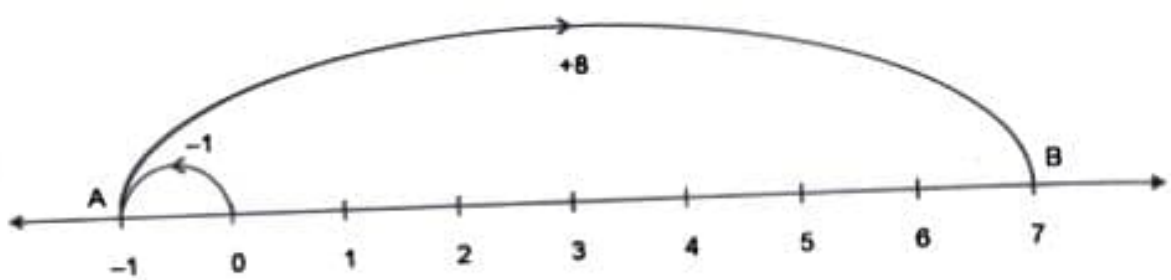
(i) -5 and -10

$(-5) + (-10) = -15$



(ii) -1 and +8

$-1 + (+8) = -1 + 8 = 7$



Exercise 4.3

① Which of the following statements are true and which are false?

(i) True

(ii) True

(iii) False

$$4-(-2) = 4+2=6$$

Thus, when a negative integer is subtracted from a number, the number increases.

(iv) False.

$$5+(-3) = 5-3=2$$

Thus, by adding a negative integer to any number, its value decreases.

(v) False

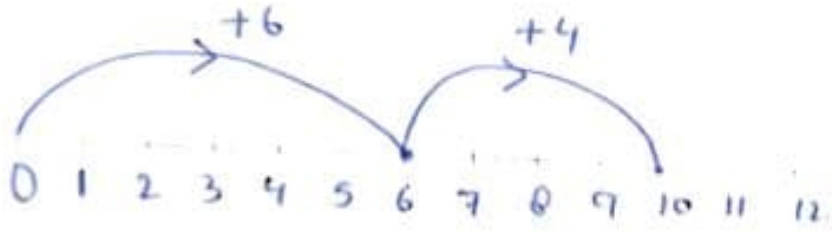
$$(-3)+(-6) = -3-6=-9$$

Thus, when two integers are added, the result is not always a positive integer.

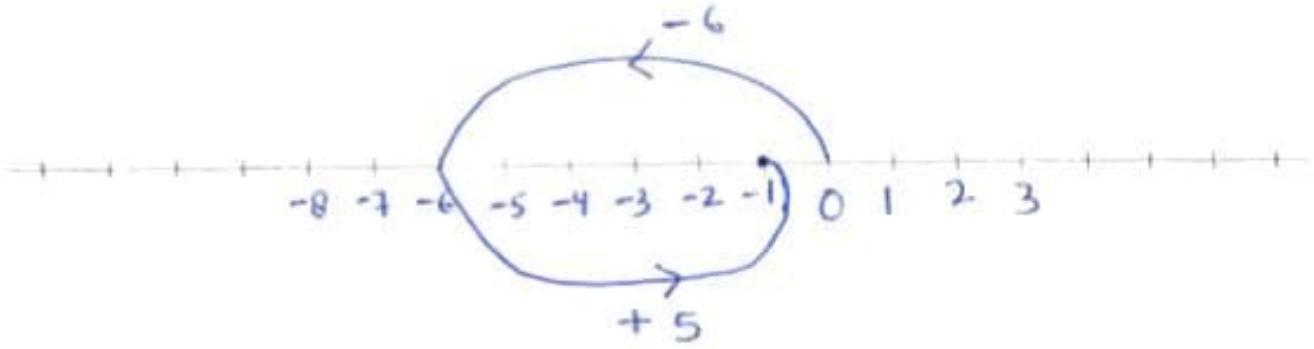
(vi) True

(13)

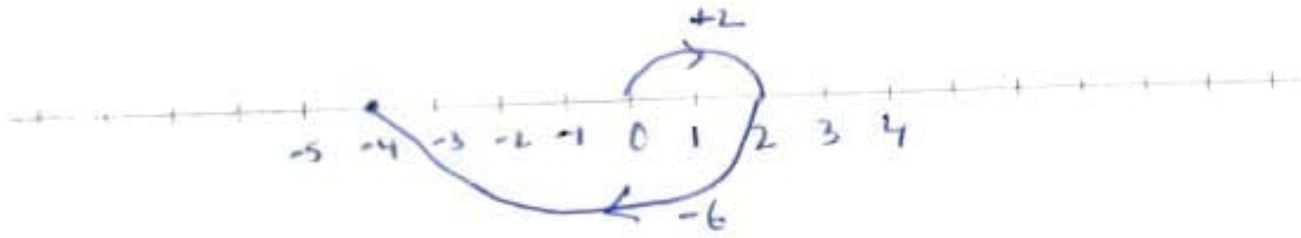
(i) 4 more than 6 = $6 + 4 = 10$



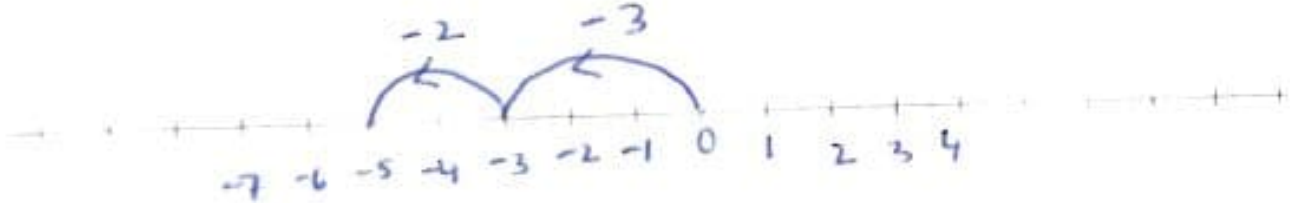
(ii) 5 more than -6 = $-6 + 5 = -1$



(iii) 6 less than 2 = $2 - 6 = -4$



(iv) 2 less than -3 = $-3 - 2 = -5$



(iii). Not true, zero is neither positive nor negative.

(iv) True

(v) True

(vi) True

(11) Fill in the blanks:

(i) The smallest positive integer is 1.

(ii) Number of integers lying between -35 and -25 is 9.

(iii) Distance between -2 and 2 on the number line is 4 units.

(iv) If Amritsar is situated north-west of Delhi, then Chennai is located South-east of Delhi.

(12)

The coolest day was Wednesday.

The hottest day was Sunday.

(8)

Absolute value of 65 is $|65| = 65$

Absolute value of -60 is $|-60| = 60$

Absolute value of -105 is $|-105| = 105$

Absolute value of 859 is $|859| = 859$

Absolute value of -1000 is $|-1000| = 1000$

Absolute value of 2007 is $|2007| = 2007$

(9)

(i) $|547 - 800| = |-253| = 253$

(ii) $|199 - 1000| = |-801| = 801$

(iii) $|35 - 50 + 12| = |47 - 50| = |-3| = 3$

(iv) $|5 \times 12 - 3 \times 25| = |60 - 75| = |-15| = 15$

(10)

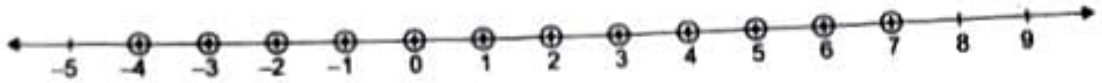
(i) Not true, zero is less than every positive integer.

(ii) Not true, when we move away from the origin towards left, we reach a smaller integer.

(iii) Not true, zero is neither positive nor negative.

④ All negative integers between -10 and 5 are $-9, -8, -7, -6, -5, -4, -3, -2, -1$

⑤ On the number line, the integers lying between -5 and 8 shown below:



These integers are : $-4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7$

⑥ Three pairs of integers which are equidistant from the point corresponding to -7 on the number line are:

∴ $(-8, -6)$ [1 hop from both the side]

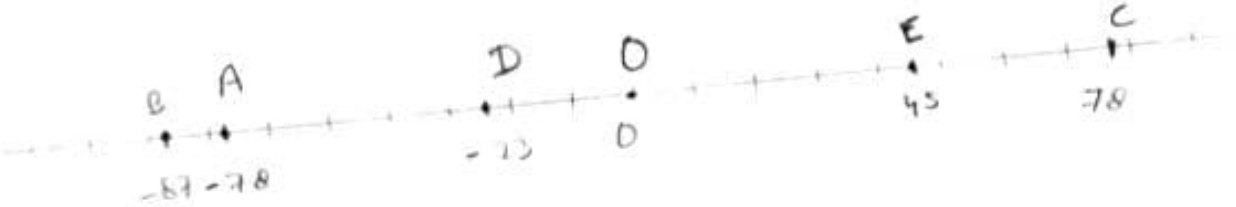
$(-9, -5)$ [2 hop from both the side]

$(-10, -4)$ [3 hop from both the side]

⑦ The largest integer is 802.

The smallest integer is -406.

(d) Draw the number line, central point O representing the number 0.



On the number line, when we move from left to right the number will increase and when we move from right to left the number will decrease.

∴ We have,

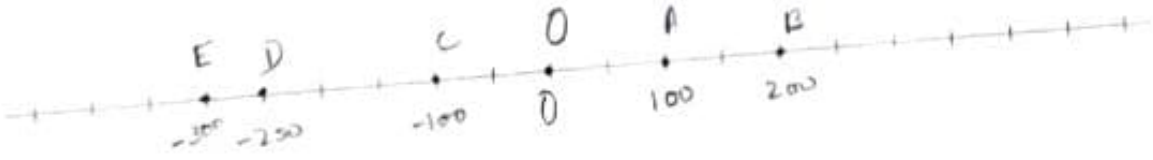
$-87 < -78 < -23 < 0 < 45 < 78$

This is the ascending order.

To write in descending order, we reverse the order and get:

$78 > 45 > 0 > -23 > -78 > -87$

(c) Draw the number line, central point O representing the number 0.



On the number line, when we move from left to right the number will increase and when we move from right to left the number will decrease.

∴ we have,

$-300 < -250 < -100 < 100 < 200$

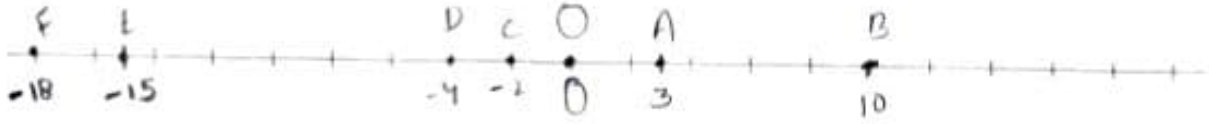
This is the ascending order.

To write in descending order, we reverse the order and get

$200 > 100 > -100 > -250 > -300$

$48 > 30 > 0 > -5 > -25 > -40$ (4) 4/4

(b) Draw the number line, central point O representing the number 0.



When we mark negative numbers on the number line we see that

-2 lies to the left of 0, therefore $-2 < 0$

-4 lies to the left of -2, so $-4 < -2$

Similarly

$$-15 < -4$$
$$-18 < -15$$

Like wise,

-2 lies to the left of 3, so $-2 < 3$

3 lies to the left of 10, so $3 < 10$.

Thus, we have

$$-18 < -15 < -4 < -2 < 3 < 10$$

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To write in descending order, we reverse the order and get

$$10 > 3 > -2 > -4 > -15 > -18$$

(3)

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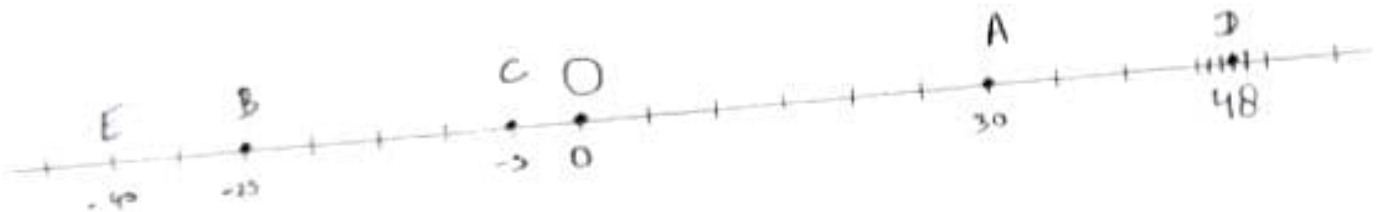

Let us mark the points representing the given numbers as number 30 represented by A, $-25, -5, 0, 48, -40$ are represented by points B, C, O, D, E

Point C representing -5 lies to the right of B representing -25.

$\therefore \quad -25 < -5$

Similarly $-25 > -40$, $0 > -5$, $30 > 0$, $48 > 30$

$\therefore$ We have $-40 < -25 < -5 < 0 < 30 < 48$

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To write in descending order, we reverse the order and get

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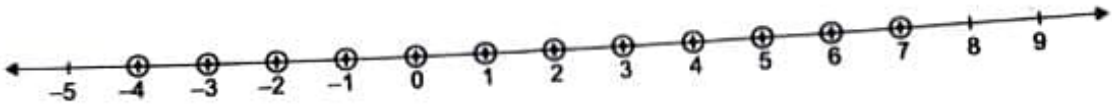

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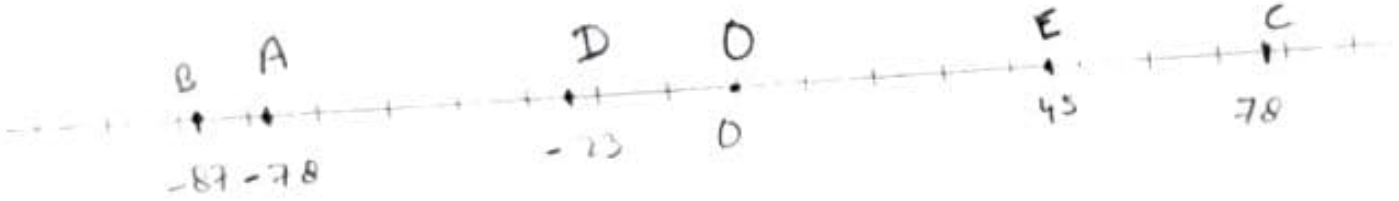

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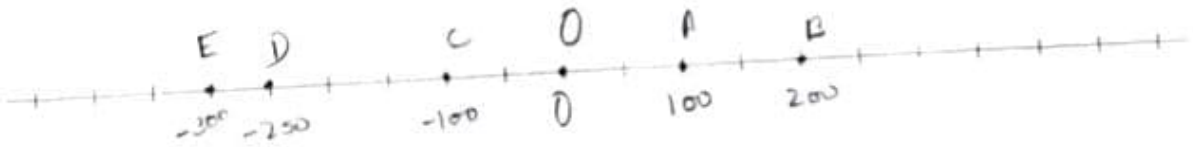

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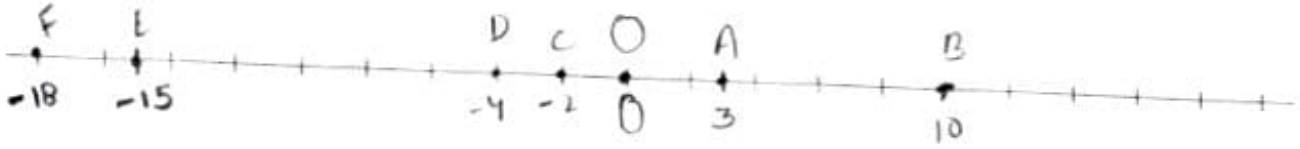

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Like wise,

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3 lies to the left of 10, so $3 < 10$.

Thus, we have

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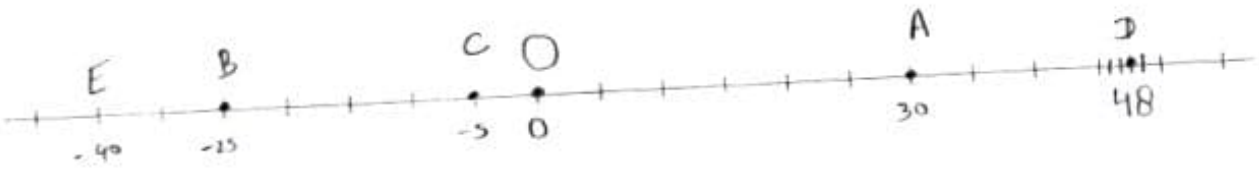
This is the ascending order.

To write in descending order, we reverse the order and get

$$10 > 3 > -2 > -4 > -15 > -18$$

(3)

(a) Draw the number line, central point O representing the number 0.



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Point C representing -5 lies to the right of B representing -25.

$\therefore \quad -25 < -5$

similarly $-25 > -40$, $0 > -5$, $30 > 0$, $48 > 30$

$\therefore$ We have $-40 < -25 < -5 < 0 < 30 < 48$

This is the ascending order.

To write in descending order, we reverse the order and get

$48 > 30 > 0 > -5 > -25 > -40$

(1)

Successor of $-30 = -30+1 = -29$

Successor of $30 = 30+1 = 31$

Successor of $-58 = -58+1 = -57$

Successor of $-230 = -230+1 = -229$

Successor of $-999 = -999+1 = -998$

(2)

(i) -20 lie on the right side of -38 on the number line.

Thus $-38 < -20$

(ii) -500 lie on the right side of -501 on the number line.

Thus, $-500 > -501$

(iii) 0 lie on the right side of -15 on the number line.

Thus, $0 > -15$

(iv) 100 lie on the right side of -100 on the number line.

Thus $-100 < 100$.

(v) ₹ 2 kg rise in price.

Opposite = ₹ 2 kg fall in price.

(2)

(i) A deposit of ₹ 5,000 in a bank account = +₹ 5,000

(ii) A loss of ₹ 25,000 in selling a house = − ₹ 25,000

(iii) Temperature of Shimla on a particular day in January is 10°C below 0 °C.

= − 10°C

(iv) Base of a ship is 900 m below sea level = − 900 m

(v) An increase of 15 marks as compared to the marks during last examination = + 15

3. Fill in the blanks by appropriate directed number :

Statement	Directed number
(i) Fall of ₹ 200 per gram in the price of gold	− ₹ 200
(ii) 5 °C below freezing point	− 5 °C
(iii) Monthly income of Rohan is increased by ₹ 500.	+ ₹ 500
(iv) Rise of 6 m in water level of sea during the full moon.	+ 6 m

(1) Jammu is located opposite to Bangalore as related to Delhi.

Chapter - 4

Negative Numbers and Integers

Exercise 4.1

①

(i) Winning ₹5 to in a game.

Opposite = Losing ₹5 to in a game

(ii) Losing a weight of 10 kg

Opposite = Gaining a weight of 10 kg

(iii) Multiplying a number by 2

Opposite = Dividing a number by 2.

(iv) Water level of the river 4m above normal

opposite = Water level of the river 4m below normal

(v) ₹2 kg rise in price.

Opposite = ₹2 kg fall in price.