



মণিপুরৰ শ্বৰ্ণাংকৰ (স) নক্সাৰ (স)

DEPARTMENT OF EDUCATION (S)
Government of Manipur

Chapter 6

Integers

SOLUTIONS:

Exercise 6.1

1. Write opposites of the following:

- a) Increase in weight
- b) 30 km north
- c) 80 m east
- d) Loss of Rs 700
- e) 100 m above sea level

Solutions:

- a) Decrease in weight
- b) 30 km south
- c) 80 m west
- d) Gain of Rs 700
- e) 100 m below sea level

2. Represent the following numbers as integers with appropriate signs.

- a) An aeroplane is flying at a height two thousand metre above the ground.
- b) A submarine is moving at a depth, eight hundred metre below the sea level.
- c) A deposit of rupees two hundred.
- d) Withdrawal of rupees seven hundred.

Solutions:

- (a) + 2000 m
- (b) – 800 m
- (c) + Rs 200
- (d) – Rs 700

3. Represent the following numbers on a number line:

(a) + 5

(b) - 10

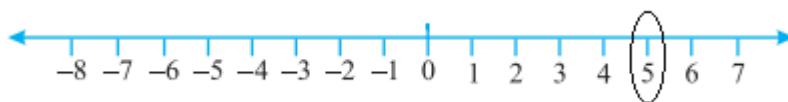
(c) + 8

(d) - 1

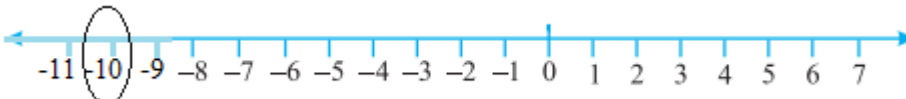
(e) - 6

Solutions:

(a) +5



(b) -10



(c) +8



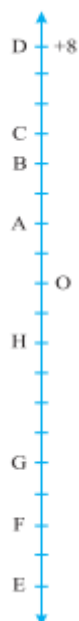
(d) -1



(e) -6



4. Adjacent figure is a vertical number line, representing integers. Observe it and locate the following points:



- If point D is + 8, then which point is – 8?
- Is point G a negative integer or a positive integer?
- Write integers for points B and E.
- Which point marked on this number line has the least value?
- Arrange all the points in decreasing order of value.

Solutions:

- The point F represents -8.
- The point G is a negative integer.
- The integer at B is +4. The integer at E is -10.
- The point E corresponds to the least number.
- The decreasing order is D,C,B,A,O,H,G,F,E.

5. Following is the list of temperatures of five places in India on a particular day of the year.

Place	Temperature	
Siachin	10°C below 0°C
Shimla	2°C below 0°C
Ahmedabad	30°C above 0°C
Delhi	20°C above 0°C
Srinagar	5°C below 0°C

- Write the temperatures of these places in the form of integers in the blank column.
- Following is the number line representing the temperature in degree Celsius.

Plot the name of the city against its temperature.



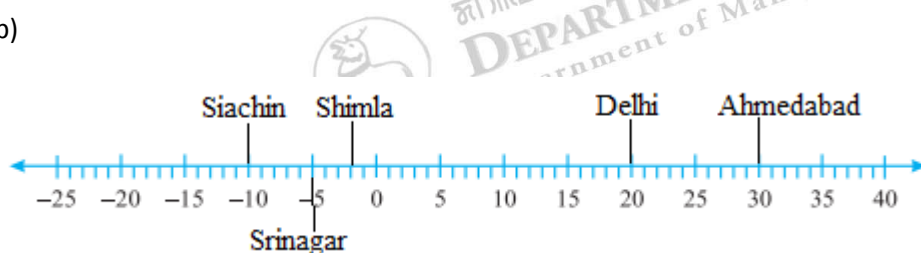
- Which is the coolest place?
- Write the names of the places where temperatures are above 10°C.

Solutions:

(a)

Place	Temperature	As an integer
Siachin	10°C below 0°C	-10°C
Shimla	2°C below 0°C	-2°C
Ahmedabad	30°C above 0°C	+30°C
Delhi	20°C above 0°C	+20°C
Srinagar	5°C below 0°C	-5°C

(b)



(c) Siachin (-10°C) is the coolest place.

(d) Delhi (+20°), Ahmedabad (+30°C) are the places where temperatures are above 10°C.

6. In each of the following pairs, which number is to the right of the other on the number line?

(a) 2, 9

(b) -3 , -8

(c) 0, -1

(d) -11 , 10

(e) -6 , 6

(f) 1, -100

Solutions:

- a) The integer 9 is to the right of the integer 2.
- b) The integer -3 is to the right of the integer -8 .
- c) The integer 0 is to the right of the integer -1 .
- d) The integer 10 is to the right of the integer -11 .
- e) The integer 6 is to the right of the integer -6 .
- f) The integer 1 is to the right of the integer -100 .

7. Write all the integers between the given pairs (write them in the increasing order.)

(a) 0 and -7

(b) -4 and 4

(c) -8 and -15

(d) -30 and -23

Solutions:

- a) The integers between 0 and -7 are $-6, -5, -4, -3, -2, -1$
- b) The integers between -4 and 4 are $-3, -2, -1, 0, 1, 2, 3$
- c) The integers between -8 and -15 are $-14, -13, -12, -11, -10, -9$
- d) The integers between -30 and -23 are $-29, -28, -27, -26, -25, -24$.

8. (a) Write four negative integers greater than -20 .

(b) Write four integers less than -10 .

Solutions:

(a) Four negative integers greater than -20 are $-19, -18, -17, -16$

(b) Four integers less than -10 are $-11, -12, -13, -14$

9. For the following statements, write True (T) or False (F). If the statement is false, correct the statement.

(a) -8 is to the right of -10 on a number line.

(b) -100 is to the right of -50 on a number line.

(c) Smallest negative integer is -1 .

(d) -26 is greater than -25 .

Solutions:

a) True

b) False, correct statement is -100 is to the left of -50 on the number line.

c) False, correct statement is Greatest negative number is -1 .

d) False, correct statement is -25 is greater than -26 .



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10. Draw a number line and answer the following:

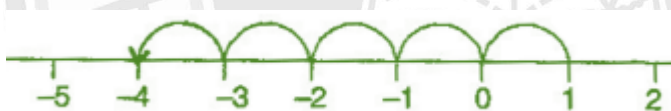
- a) Which number will we reach if we move 4 numbers to the right of -2 .
- b) Which number will we reach if we move 5 numbers to the left of 1 .
- c) If we are at -8 on the number line, in which direction should we move to reach -13 ?
- d) If we are at -6 on the number line, in which direction should we move to reach -1 ?

Solutions:

- a) When we start from -2 and proceed 4 units to the right of -2 , we will reach at number 2 .



- b) When we start from 1 and proceed 5 units to left of 1 , we will reach -4 .



- c) If we are at -8 on the number line, we want to reach -13 then we should move to the left direction of -8 .
- d) If we are at -6 on the number line, we want to reach -1 then we should move to the right direction of -6 .



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Exercise 6.2

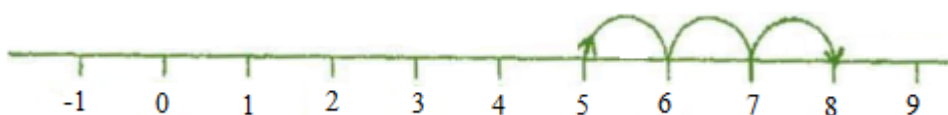
1. Using the number line write the integer which is:

- a) 3 more than 5
- b) 5 more than -5
- c) 6 less than 2
- d) 3 less than -2

Solutions:

- a) 3 more than 5

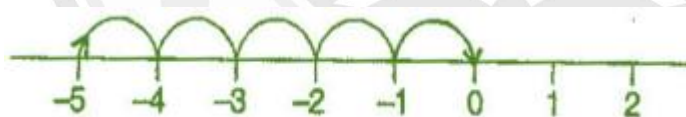
$$5 + 3 = 8$$



On the number line we start from 5 and move 3 steps to the right to reach 8 as shown in figure.
Hence 3 more than 5 is 8.

- b) 5 more than -5

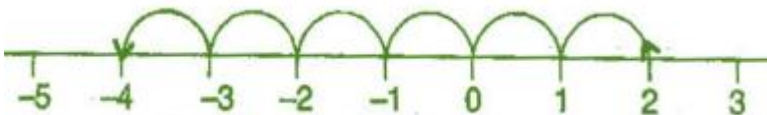
$$-5 + 5 = 0$$



On the number line we start from -5 and move 5 steps to the right to reach 0 as shown in the figure.
Hence 5 more than -5 is 0.

- c) 6 less than 2

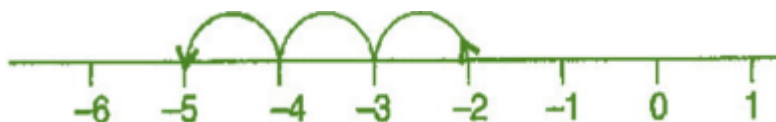
$$2 - 6 = -4$$



On the number line we start from 2 and move 6 steps to the left to reach -4 as shown in the figure.
Hence 6 less than 2 is -4.

d) 3 less than -2

$$-2 - 3 = -5$$



On the number line we start from -2 and move 3 steps to the left to reach -5 as shown in the figure. Hence 3 less than -2 is -5 .

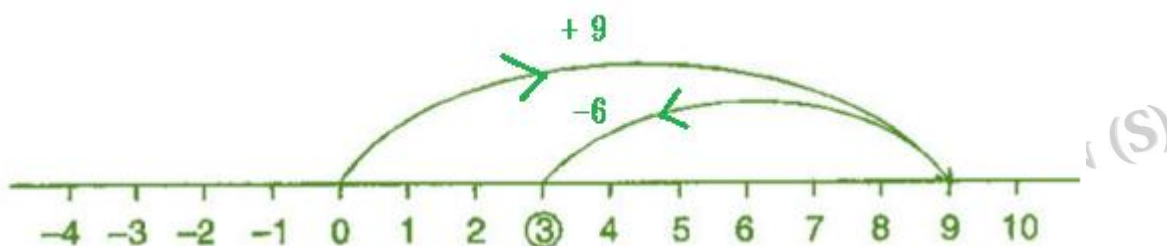
2. Use number line and add the following integers:

- a) $9 + (-6)$
- b) $5 + (-11)$
- c) $(-1) + (-7)$
- d) $(-5) + 10$
- e) $(-1) + (-2) + (-3)$
- f) $(-2) + 8 + (-4)$

Solutions:

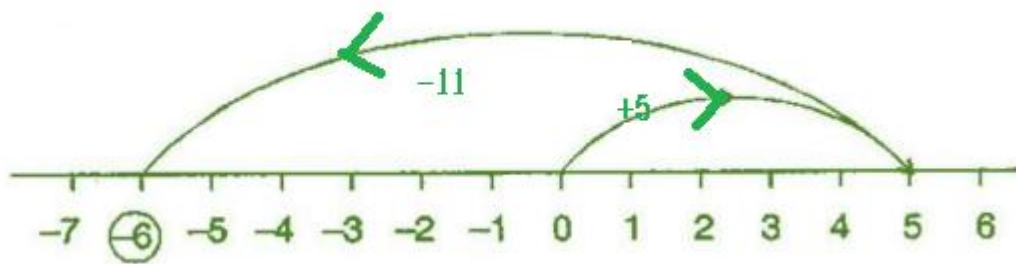
a) $9 + (-6)$

On the number line, first we move to right of zero by 9 units obtaining 9. Then we move 6 units to the left of 9 reaching 3 as shown in the figure.



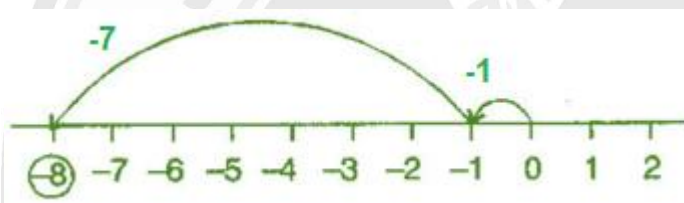
b) $5 + (-11)$

On the number line, first we move to right of zero by 5 units obtaining 5. Then we move 11 units to the left of 5 reaching -6 as shown in the figure.



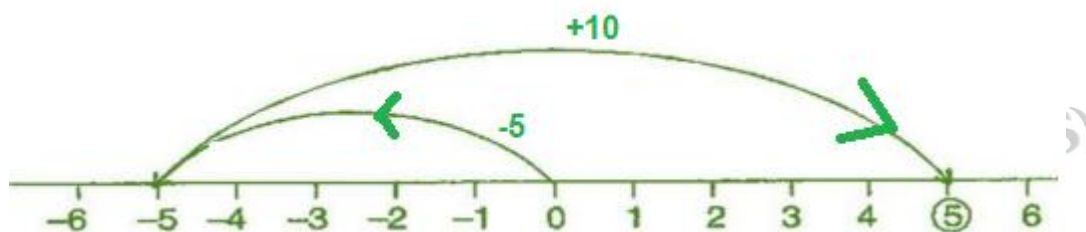
c) $(-1) + (-7)$

On the number line, first we move to right of zero by 1 unit obtaining -1. Then we move 7 units to the left of -1 reaching -8 as shown in the figure.



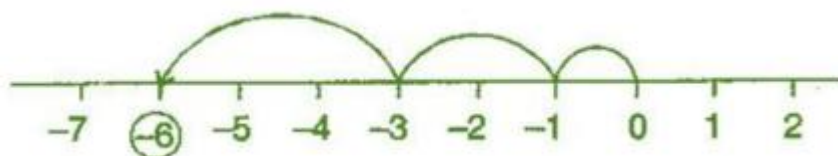
d) $(-5) + 10$

On the number line, first we move to left of zero by 5 units obtaining -5. Then we move 10 units to the right of -5 reaching 5 as shown in the figure.



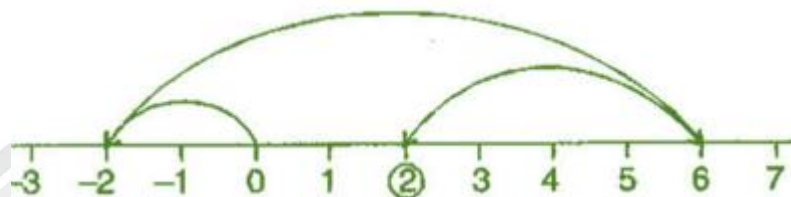
e) $(-1) + (-2) + (-3)$

On the number line, first we move to the left of zero by one step obtaining -1. Then we move 2 units to the left of -1 obtaining -3. Again we move 3 units to the left of -3 obtaining -6 as shown in the figure.



f) $(-2) + 8 + (-4)$

On the number line, first we move to the left of zero by 2 steps obtaining -2. Then again we move 8 units to the right of -2 obtaining 6. Then, we move 4 units to the left of 6 obtaining 2 as shown in the figure.



3. Add without using number line:

- a) $11 + (-7)$
- b) $(-13) + (+18)$
- c) $(-10) + (+19)$
- d) $(-250) + (+150)$
- e) $(-380) + (-270)$
- f) $(-217) + (-100)$

Solutions:

- a) $11 + (-7) = 11 - 7 = 4$
- b) $(-13) + (+18) = 18 - 13 = 5$
- c) $(-10) + (+19) = 19 - 10 = 9$
- d) $(-250) + (+150) = -250 + 150 = -100$
- e) $(-380) + (-270) = -380 - 270 = -650$
- f) $(-217) + (-100) = -217 - 100 = -317$

4. Find the sum of:

- (a) 137 and - 354
- (b) - 52 and 52
- (c) - 312, 39 and 192
- (d) - 50, - 200 and 300

Solutions:

- (a) 137 and - 354
 $= 137 + (-354)$



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$$= 137 - 354$$

$$= -217$$

(b) -52 and 52

$$= -52 + 52$$

$$= 0$$

(c) 312, 39 and 192

$$= -312 + 39 + 192$$

$$= -312 + 231$$

$$= -81$$

(d) 50, -200 and 300

$$= -50 + (-200) + 300$$

$$= -50 - 200 + 300$$

$$= -250 + 300$$

$$= 50$$

5. Find the sum:

a) $(-7) + (-9) + 4 + 16$

b) $(37) + (-2) + (-65) + (-8)$

Solutions:

a) $(-7) + (-9) + 4 + 16$

$$= -7 - 9 + 4 + 16$$

$$= -16 + 16 + 4$$

$$= -16 + 20$$

$$= 4$$

b) $(37) + (-2) + (-65) + (-8)$

$$= 37 - 2 - 65 - 8$$

$$= 37 - 75$$

$$= -38$$



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Exercise 6.3

1. Find

(a) $35 - (20)$

(b) $72 - (90)$

(c) $(-15) - (-18)$

(d) $(-20) - (13)$

(e) $23 - (-12)$

(f) $(-32) - (-40)$

Solutions:

a) $35 - (20)$

$$= 35 - 20$$

$$= 15$$

b) $72 - (90)$

$$= 72 - 90$$

$$= -18$$

c) $(-15) - (-18)$

$$= -15 + 18$$

$$= 3$$

d) $(-20) - (13)$

$$= -20 - 13$$

$$= -33$$

e) $23 - (-12)$

$$= 23 + 12$$

$$= 35$$



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f) $(-32) - (-40)$

$= -32 + 40$

$= 8$

2. Fill in the blanks with $>$, $<$ or $=$ sign.

(a) $(-3) + (-6)$ _____ $(-3) - (-6)$

(b) $(-21) - (-10)$ _____ $(-31) + (-11)$

(c) $45 - (-11)$ _____ $57 + (-4)$

(d) $(-25) - (-42)$ _____ $(-42) - (-25)$

Solutions:

a) $(-3) + (-6)$ _____ $(-3) - (-6)$

$= -3 - 6$ _____ $-3 + 6$

$= -9 < 3$

Hence $(-3) + (-6) < (-3) - (-6)$

b) $(-21) - (-10)$ _____ $(-31) + (-11)$

$= -21 + 10$ _____ $-31 - 11$

$= -11$ _____ -42

$= -11 > -42$

Hence $(-21) - (-10) > (-31) + (-11)$

c) $45 - (-11)$ _____ $57 + (-4)$

$= 45 + 11$ _____ $57 - 4$

$= 56$ _____ 53

$= 56 > 53$

Hence $45 - (-11) > 57 + (-4)$





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d) $(-25) - (-42) \underline{\hspace{1cm}} (-42) - (-25)$

$= -25 + 42 \underline{\hspace{1cm}} -42 + 25$

$= 17 \underline{\hspace{1cm}} -17$

$= 17 > -17$

Hence $(-25) - (-42) > (-42) - (-25)$

3. Fill in the blanks.

(a) $(-8) + \underline{\hspace{1cm}} = 0$

(b) $13 + \underline{\hspace{1cm}} = 0$

(c) $12 + (-12) = \underline{\hspace{1cm}}$

(d) $(-4) + \underline{\hspace{1cm}} = -12$

(e) $\underline{\hspace{1cm}} - 15 = -10$

Solutions:

$(-8) + \underline{8} = 0$

$13 + \underline{(-13)} = 0$

$12 + \underline{(-12)} = \underline{0}$

$(-4) + \underline{(-8)} = -12$

$\underline{5} - 15 = -10$



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4. Find

(a) $(-7) - 8 - (-25)$

(b) $(-13) + 32 - 8 - 1$

(c) $(-7) + (-8) + (-90)$

(d) $50 - (-40) - (-2)$

Solutions:

a) $(-7) - 8 - (-25)$

$$= -7 - 8 + 25$$

$$= -15 + 25$$

$$= 10$$

b) $(-13) + 32 - 8 - 1$

$$= -13 + 32 - 8 - 1$$

$$= 32 - 22$$

$$= 10$$

c) $(-7) + (-8) + (-90)$

$$= -7 - 8 - 90$$

$$= -105$$

d) $50 - (-40) - (-2)$

$$= 50 + 40 + 2$$

$$= 92$$



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