

UNIQUE STUDY POINT

CLASS VI: MATHEMATICS NCERT SOLUTIONS

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Mathematics NCERT Grade 6, Chapter 6: Integers- The chapter familiarizes students with the concept of **integers**.

- **The collection of numbers-2, -1, 0, 1, 2 is called integers.** These are the numbers with the **negative sign** and are called **negative numbers**
- Students will learn that one more than the given number gives **successor** and one less than the given number gives **predecessor**.

In the beginning, a detailed description of the topic **Integers** and **Representation of Integers on a number line** is given followed by the concept of **Ordering of integers**. Several operations of **integers** are explained in this section with a detailed explanation such as:

- **Addition of integers**
- **Addition of integers on a number line**
- **Subtraction of integers with the help of a number line**

Students will learn some new concepts in this chapter **Integers**.

- **Additive inverse:** It is the number which when added to an integer a , gives the result 0.
- To subtract an **integer** from another **integer** it is enough to add the **additive inverse** of the **integer** that is being subtracted, to the other **integer**.

Students should practice as many questions as possible from this chapter so that the concept is clear as this chapter is the foundation for more complex problems and other calculations involving integers in higher grades. A total of 2 unsolved exercises along with many solved examples are given in this chapter to make the concept more clear.

Summarization of all the important points of the chapter are given at the end.

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Question 1:

Write opposites of the following:

- (a) Increase in weight (b) 30 km north
- (c) 326 BC (d) Loss of Rs 700
- (e) 100 m above sea level

ANSWER:

- (a) Decrease in weight
- (b) 30 km south
- (c) 326 A.D.

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(d) Gain of Rs 700

(e) 100 m below sea level

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Question 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.

ANSWER:

(a) +2000

(b) -800

(c) +200

(d) -700

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Question 3:

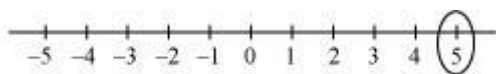
Represent the following numbers on a number line:

(a) + 5 (b) - 10 (c) + 8

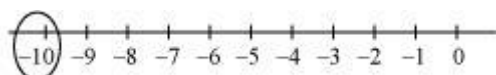
(d) - 1 (e) - 6

ANSWER:

(a)



(b)



(c)

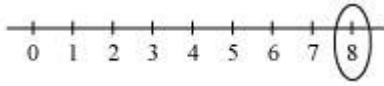
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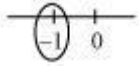
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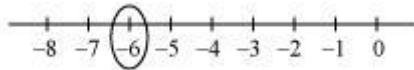
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(d)



(e)

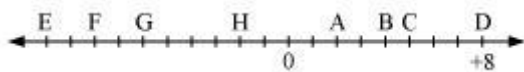


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Question 4:

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

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



ANSWER:

- (a) F
- (b) Negative integer (-6)
- (c) Point B represents 4 and point E represents -10.
- (d) E has the least value as it represents -10.
- (e) $D > C > B > A > O > H > G > F > E$

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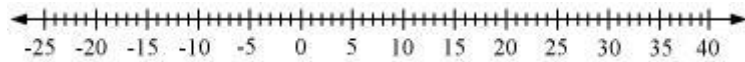
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Following is the list of temperatures of five places in India on a particular day of the year.

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

(a) Write the temperatures of these places in the form of integers in the blank column.

(b) Following is the number line representing the temperature in degree Celsius.



Plot the name of the city against its temperature.

(c) Which is the coolest place?

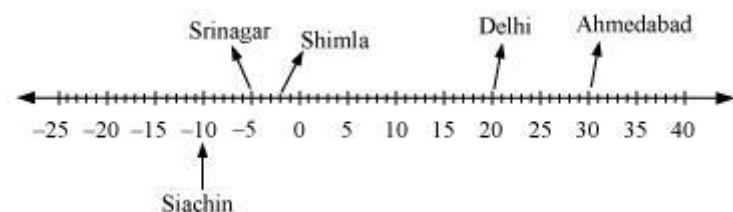
(d) Write the names of the places where temperatures are above 10°C.

ANSWER:

(a)

Siachin	-10°C
Shimla	-2°C
Ahmedabad	+30°C
Delhi	+20°C
Srinagar	-5°C

(b)



(c) Siachin

(d) Delhi, Ahmedabad

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Question 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

ANSWER:

(a) 9 ($9 > 2$)

(b) -3 ($-3 > -8$)

(c) 0 ($0 > -1$)

(d) 10 ($10 > -11$)

(e) 6 ($6 > -6$)

(f) 1 ($1 > -100$)

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Question 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

ANSWER:

(a) -6 , -5 , -4 , -3 , -2 , -1

(b) -3 , -2 , -1 , 0, 1, 2, 3

(c) -14 , -13 , -12 , -11 , -10 , -9

(d) -29 , -28 , -27 , -26 , -25 , -24

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Question 8:

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

(b) Write four negative integers less than -10 .

ANSWER:

(a) $-19, -18, -17, -16$

(b) $-11, -12, -13, -14$

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Question 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 .

ANSWER:

(a) True ($-8 > -10$)

(b) False ($-50 > -100$)

-100 is to the left of -50 on a number line.

(c) False, as the greatest negative integer is -1 .

(d) False, as -26 is smaller than -25 .

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Question 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 ?

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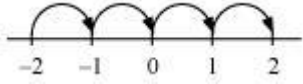
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(d) If we are at -6 on the number line, in which direction should we move to reach -1 ?

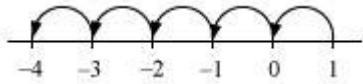
ANSWER:

(a)



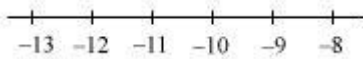
We will reach at 2, if we move 4 numbers to the right of -2 .

(b)



We will reach at -4 , if we move 5 numbers to the left of 1.

(c)



Clearly, -13 is to the left of -8 . Therefore, we should move towards the left direction.

(d)



Clearly, -1 is to the right of -6 . Therefore, we should move towards the right direction.

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Question 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

ANSWER:

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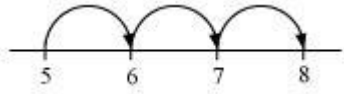
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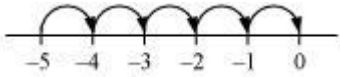
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(a)



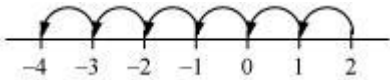
Hence, 8

(b)



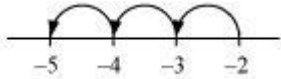
Hence, 0

(c)



Hence, -4

(d)



Hence, -5

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

ANSWER:

(a)

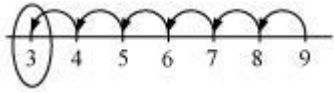
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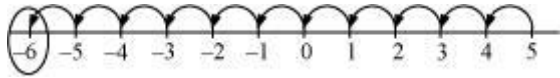
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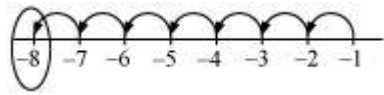
Hence, 3

(b)



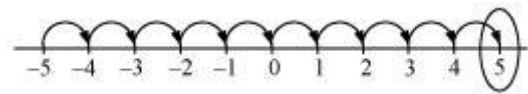
Hence, -6

(c)



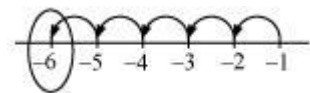
Hence, -8

(d)



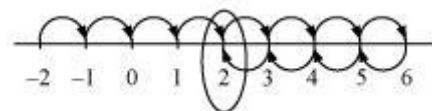
Hence, 5

(e)



Hence, -6

(f)



Hence, 2

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Question 3:

Add without using number line:

(a) $11 + (-7)$

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(b) $(-13) + (+18)$

(c) $(-10) + (+19)$

(d) $(-250) + (+150)$

(e) $(-380) + (-270)$

(f) $(-217) + (-100)$

ANSWER:

(a) $11 + (-7) = 4$

(b) $(-13) + (+18) = 5$

(c) $(-10) + (+19) = 9$

(d) $(-250) + (+150) = -100$

(e) $(-380) + (-270) = -650$

(f) $(-217) + (-100) = -317$

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Question 4:

(a) 137 and -354 (b) -52 and 52

(c) -312, 39 and 192 (d) -50, -200 and 300

ANSWER:

(a) $137 + (-354) = -217$

(b) $-52 + 52 = 0$

(c) $-312 + 39 + 192 = -312 + 231 = -81$

(d) $-50 + (-200) + 300 = -250 + 300 = 50$

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Question 5:

Find the sum:

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(a) $(-7) + (-9) + 4 + 16$ (b) $(37) + (-2) + (-65) + (-8)$

ANSWER:

(a) $(-7) + (-9) + 4 + 16 = -16 + 20 = 4$

(b) $37 + (-2) + (-65) + (-8) = 37 + (-75) = -38$

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Question 1:

Find:

(a) $35 - (20)$ (b) $72 - (90)$

(c) $(-15) - (-18)$ (d) $(-20) - (13)$

(e) $23 - (-12)$ (f) $(-32) - (-40)$

ANSWER:

(a) $35 - 20 = 15$

(b) $72 - 90 = -18$

(c) $-15 - (-18) = -15 + 18 = 3$

(d) $-20 - 13 = -33$

(e) $23 - (-12) = 23 + 12 = 35$

(f) $(-32) - (-40) = -32 + 40 = 8$

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Question 2:

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

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

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

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

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

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ANSWER:

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

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

$$-9 < 3$$

$$\text{Hence, } (-3) + (-6) < (-3) - (-6)$$

$$(b) -21 - (-10) = -21 + 10 = -11$$

$$-31 + (-11) = -42$$

$$-11 > -42$$

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

$$(c) 45 - (-11) = 45 + 11 = 56$$

$$57 + (-4) = 57 - 4 = 53$$

$$56 > 53$$

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

$$(d) (-25) - (-42) = -25 + 42 = 17$$

$$-42 - (-25) = -42 + 25 = -17$$

$$17 > -17$$

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

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Question 3:

Fill in the blanks.

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

$$(b) 13 + \underline{\quad} = 0$$

$$(c) 12 + (-12) = \underline{\quad}$$

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

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(e) _____ - 15 = - 10

ANSWER:

(a) - 8 + 8 = 0

(b) 13 + $\frac{(-13)}{\quad}$ = 0

(c) 12 + (-12) = $\frac{0}{\quad}$

(d) - 4 + (-8) = -12

(e) 5 - 15 = -10

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Question 4:

Find:

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

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

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

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

ANSWER:

(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