CBSE NCERT Solutions for Class 6 Mathematics Chapter 6

Back of Chapter Questions

Exercise 6.1

1. Write opposite of the following:

(A) Increase in weight

(B) 30 km north

(C) 80 m East

(D) Loss of ₹700

(E) 100 m above sea level

Solution:

(A) Decrease in weight

(B) 30 km south

(C) 80 m West

(D) Profit of ₹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 meters above the ground.

(B) A submarine is moving at a depth eight hundred meters below the sea level.

(C) A deposit of rupees two hundred.

(D) Withdrawal of rupees seven hundred.

Solution:

(A) (+) 2000 meters

Since, the aeroplane is flying above the ground, the height is taken to be positive.

(B) (−) 800 meters

Since, the submarine is below the sea level, the depth is taken to be negative.

(C) (+) 200 Rupees

Deposition of money is considered to be positive while expenditure is considered negative.

(D) (−) 700 Rupees

Deposition of money is considered to be positive while expenditure is considered negative.

3. Represent the following numbers on number line:

(A) +5

(B) −10

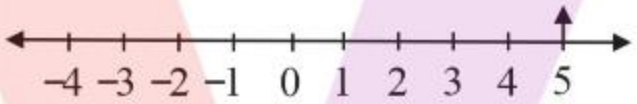
(C) +8

(D) −1

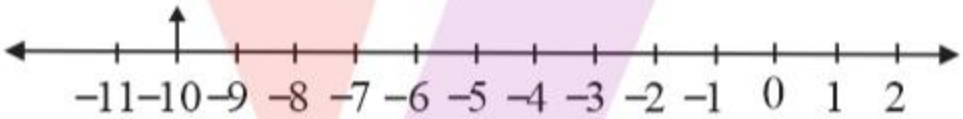
(E) −6

Solution:

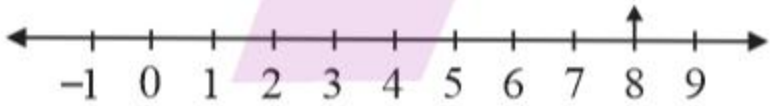
(A) +5 is greater than 0, hence it appears towards the right of zero.



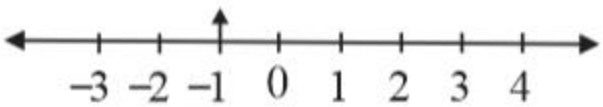
(B) −10 is lesser than 0, hence it appears towards the left of zero.



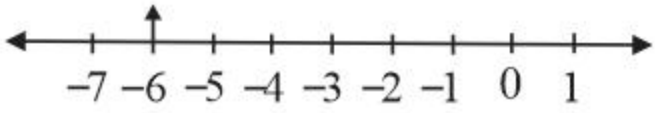
(C) +8 is greater than 0, hence it appears towards the right of zero.



(D) −1 is lesser than 0, hence it appears towards the left of zero.



(E) −6 is lesser than 0, hence it appears towards the left of zero.



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?

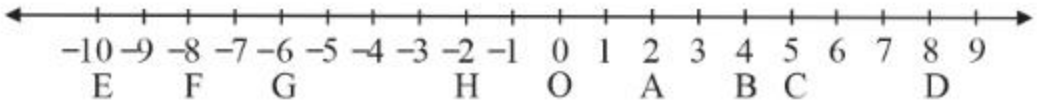
(C) Write integers for points B and E.

(D) Which point marked on this number line has the least value?

(E) Arrange all the points in decreasing order of values.

Solution:

Let us draw a rough number line and locate points according to the given figure.



(A) From the above figure,

If point D is +8, then −8 will appear at a point F:

8 units (from +8 to 0) + 8 units (from 0 to −8) = 16 units from D.

Hence, point F represents −8.

(B) From the above figure,

Point G represents a negative integer.

Counting the integers from point D, we can observe that point O represents 0. Therefore, all the numbers below point O represent negative integers.

(C) From the above figure,

Point B lies 4 units below $(+)\ 8$

Therefore, the integer value of B is $(+)\ 8 - 4\ =\ (+)4$

Now, point E lies 18 units below **+8.** Until point O, we have 8 units.

Therefore $18 - 8 = 10$ will be the number of units below zero.

$B = (+)4$ and $E = (-)10$

Hence, point E represents -10 and point B represents $+4$

(D) From the above figure,

Since, down the line the value of integers decreases, point E has the least value.

(E) From the above figure,

The point at the top of the number line has the highest value.

The value decreases down the number line.

Hence, the points arranged in the decreasing order of their values will be as follows: D, C, B, A, O, H, G, F, E

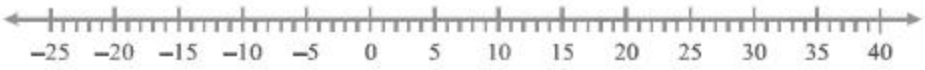
5. Following is the list of temperatures of five places in India, on a particular day of the year.

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	_____

(A) Write the temperature 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?

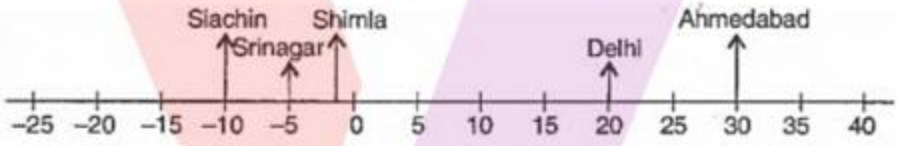
(D) Write the names of the place where temperatures are above 10°C.

Solution:

(A) In the below table, the temperature values are shown in integers form.

Place	Temperature	Temperature
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) Number line represents name of the cities against its temperature.



(C) From Siachin is the coldest place with the least temperature of $(-)10°C$.

Minimum number will be the smallest negative number.

So, $(-)10°C$ is on the left of the line which is the smallest negative number.

(E) From the table we can observe that,

Ahmedabad with a temperature of $(+)30°$ and Delhi with a temperature of $(+)20°$ have temperatures above $(+)10°$.

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) $0, -1$

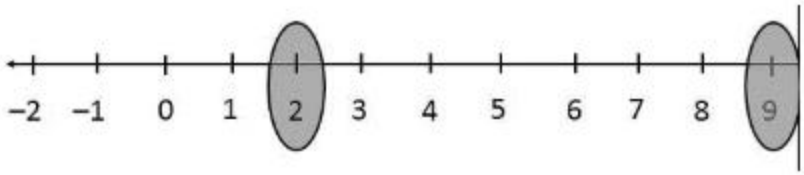
(D) $-11, 10$

(E) $-6, 6$

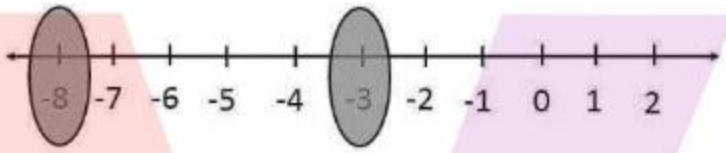
(F) $1, -100$

Solution:

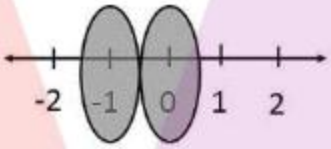
(A) Since 9 is greater than 2, the integer 9 is to the right of 2.



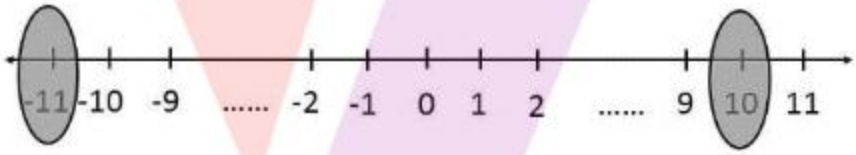
(B) Since -3 is greater than -8, the integer -3 is to the right of -8.



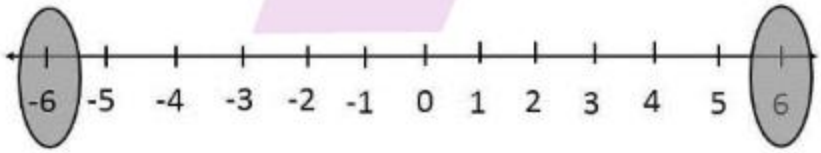
(C) Since 0 is greater than -1, the integer 0 is to the right of -1



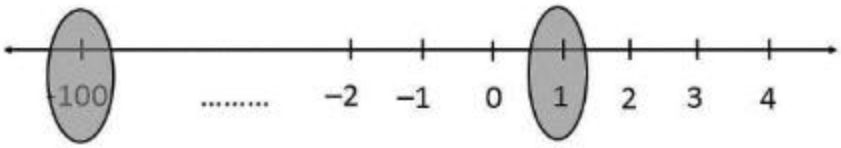
(D) Since 10 is greater than -11, the integer 10 is to the right of -11



(E) Since 6 is greater than -6, the integer 6 is to the right of -6



(F) Since 1 is greater than -100, the integer 1 is to the right of -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

Solution:

The following are the integers between the given pairs, in the increasing order.

(A) $-6, -5, -4, -3, -2, -1$

(B) $-3, -2, -1, 0, 1, 2, 3$

(C) $-14, -13, -12, -11, -10, -9$

(D) $-29, -28, -27, -26, -25, -24$

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

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

Solution:

Farther a number from zero on the left, smaller is its value. Hence,

(A) $-19, -18, -17, -16$ are the examples of the numbers that are greater than -20

(B) $-11, -12, -13, -14$ are the examples of the numbers that are lesser than -10.

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.

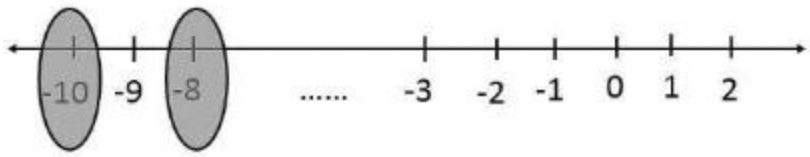
(B) -100 is to the right of -50 on a number line.

(C) Smallest negative integer is -1.

(D) -26 is larger than -25.

Solution:

(A) True



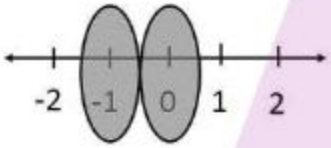
Since -8 is greater than -10, the integer -8 lies towards the right of

-10.

(B) False

Since -50 is greater than -100, the integer -50 lies towards the right of -100.

(C) False



Farther the number from zero on the left, smaller is its value.

Therefore, -1 is the greatest negative integer.

(D) False

Farther the number from zero on the left, smaller is its value.

So, $-26 < -25$

Since -25 lies closer to zero than -26, the integer -25 is larger than -26.

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.

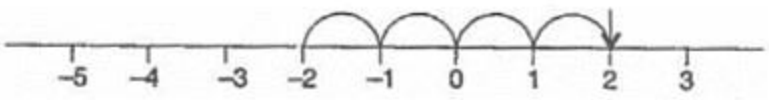
(B) Which number will we reach if we move 5 numbers to the left of 1.

(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?

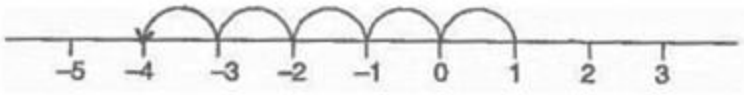
Solution:

(A) Let's draw the number line,



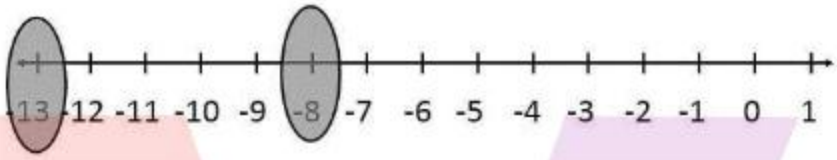
We will reach 2 if we move 4 numbers to the right of −2.

(B) Let's draw the number line,



We will reach −4 if we move 5 numbers to the left of 1.

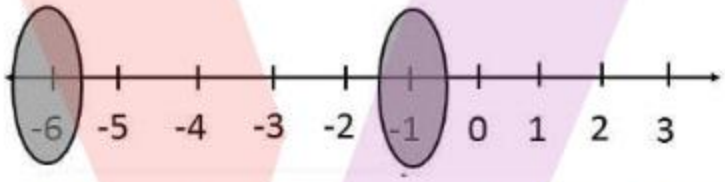
(C) Let's draw the number line,



Since −8 is greater than −13, the integer −8 will lie to the right of −13.

Hence, we need to move towards the left on the number line from −8 to reach −13.

(D) Let's draw the number line,



Since −1 is greater than −6, the integer −1 will lie on the right side of −6.

Hence, we need to move towards the right on the number line from −6 to reach −1.

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

Solution:

Farther a number from zero on the right, larger is its value.

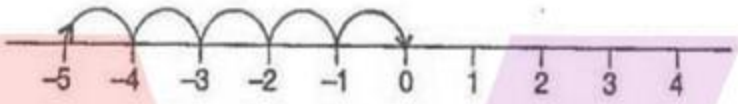
Farther a number from zero on the left, smaller is its value.

(A) Let us consider any number line to plot integers,

Since, we need to arrive at a number that is 3 more than 5, we move towards the right of 5 by three units. The number obtained is 8.

(B) Let us consider the number line to plot integers,

Since, we need to arrive at a number that is 5 more than -5, we move towards the right of -5 by 5 units. The number obtained is 0.

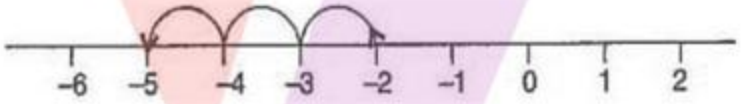


(C) Let us consider the number line to plot integers,

Since, we need to arrive at a number that is 6 less than 2, we move towards the left of 2 by 6 units. The number obtained will be -4.

(E) Let us consider the number line to plot integers,

Since, we need to arrive at a number that is three less than -2, we move towards the left of -2 by 3 units. The number obtained will be -5.



2. Use number line and add the following integers:

(A) $9 + (-6)$

(B) $5 + (-11)$

(C) $(-1) + (-7)$

(D) $(-5) + 10$

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

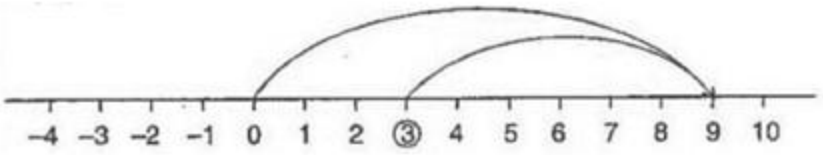
(F) $(-2) + 8 + (-4)$

Solution:

(A) Let us consider the number line,

First, we move to 9 steps to right on the number line from 0 and retreat by 6 units towards left, hence obtaining 3.

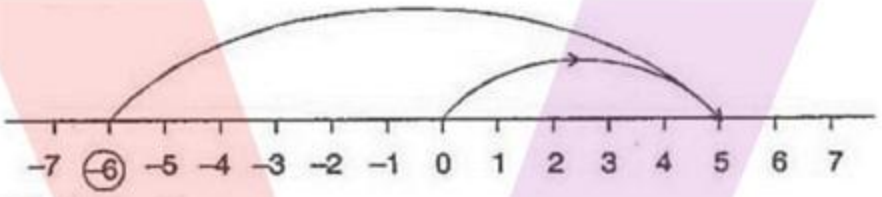
$9 + (-6) = 3$



(B) Let us consider the number line,

Now first we move to 5 steps right from 0 on the number line and retreat by 11 units, hence obtaining -6.

$5 + (-11) = -6$



(C) Let us consider the number line,

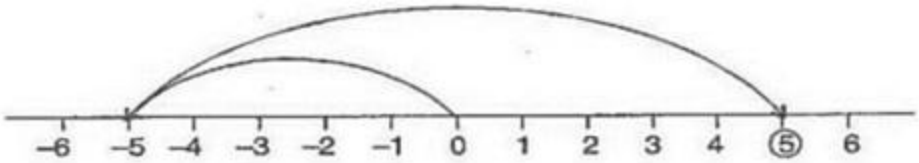
First, we move to 1 step left from 0 on the number line and then move 7 units from -1 towards left, hence obtaining -8.

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

(D) Let us consider the number line,

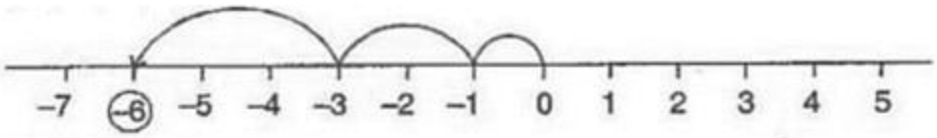
Now first we move 5 units to the left of 0 to obtain -5 and then move 10 units forward from -5, hence obtaining 5.

$(-5) + 10 = 5$



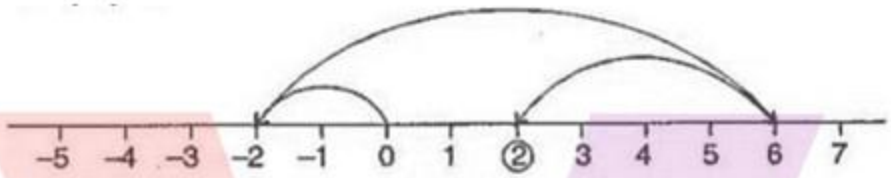
(E) We first move one unit to the left of 0 to obtain -1 and then move 2 and 3 steps subsequently, hence obtaining -6.

$(-1) + (-2) + (-3) = -6$



(F) We first move 2 units to the left of zero, to obtain -2. Then we move 8 units forward from -2, thereby reaching 6. From 6 retreat by 4 units to obtain 2.

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



3. Add without using number line:

(A) $11 + (-7)$

(B) $(-13) + (+18)$

(C) $(-10) + (+19)$

(D) $(-250) + (+150)$

(E) $(-380) + (-270)$

(F) $(-217) + (-100)$

Solution:

(A) $11 + (-7)$

$= 11 - 7$

$= 4$

(B) $(-13) + 18$

$= 18 - 13$

$= 5$

(C) $(-10) + (+19)$

$= -10 + 19$

$= 9$

(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) $-213, 39$ and 192

(D) $-50, -200$ and 300

Solution:

(A) $137 + (-354)$

$= 137 - 354$

$= -217$

(E) $(-52) + 52 = 0$ [Additive inverses]

(C) $(-312) + 39 + 192$

$= -312 + 231$

$= -81$

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

$= -50 - 200 + 300$

$= -250 + 300$

$= 50$

5. Find the value of:

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

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

Solution:

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

$= -7 - 9 + 4 + 16$

$= -16 + 20$

$= 4$

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

$= 37 - 2 - 65 - 8$

$= 37 - 75$

$= -38$

Exercise 6.3

1. Find:

(A) $35 - (20)$

(B) $72 - (90)$

(C) $(-15) - (-18)$

(D) $(-20) - (13)$

(E) $23 - (-12)$

(F) $(-32) - (-40)$

Solution:

(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) $23 - 12$

$= 23 + 12$

$= 35$

(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) $(-25) - (-42)$._____ $(-42) - (-25)$

Solution:

(A) Given,

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

RHS: $(-3) - (-6) = 3$

Clearly, RHS>LHS

So, $3 > (-9)$

Therefore,$(-3) + (-6) < (-3) - (-6)$

(B) Given,

LHS: $(-21) - (-10) = (-11)$

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

Clearly, LHS>RHS

So, $(-11) > (-42)$

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

(C) Given,

LHS: $45 - 11 = 56$

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

Clearly, RHS<LHS

So, $56 > 53$

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

(D) Given,

LHS: $(-25)-(-42)=17$

RHS: $(-42)-(-25)=(-17)$

Clearly, RHS<LHS

So, $17>(-17)$

Therefore, $(-25)-(-42)>(-42)-(-25)$

3. Fill in the blanks:

(A) $(-8)+$ _____ $=0$

(B) $13+$ _____ $=0$

(C) $12+(-12)=$ _____

(D) $(-4)+$ _____ $=-12$

(E) _____ $-15=-10$

Solution:

(A) Additive inverse of (-8) is 8.

So, $(-8)+8=0$

Hence, 8 is the required answer.

(B) Additive inverse of 13 is (-13).

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

Hence, (-13) is the required answer.

(C) 12 and (-12) are additive inverses of each other.

Hence, upon adding its sum will be equal to zero.

$12+(-12)=0$

Therefore, (-12) is the required answer.

(D) Since, $(-12)+4=(-8)$.

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

Hence, (-8) is the required answer.

(E) Since, $(-10)+15=5$,

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

Therefore, 5 is the required answer.

4. Find:

(A) $(-7) - 8 - (-25)$

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

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

(D) $50 - (-40) - (-2)$

Solution:

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

$= 50 + 40 + 2$

$= 92$