

EXERCISE 7(B)

Use a number line to evaluate each of the following :

Question 1.

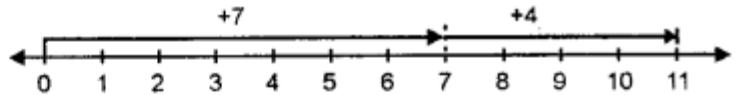
(i) $(+ 7) + (+ 4)$

(ii) $0 + (+ 6)$

(iii) $(+ 5) + 0$

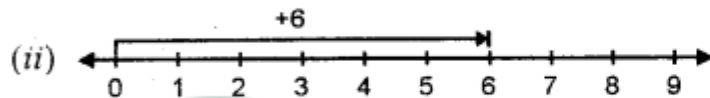
Solution:

(i) $(+ 7) + (+ 4)$



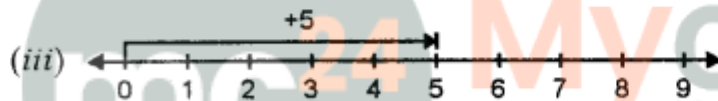
For + 7, move 7 units to the right of zero and for + 4 move 4 units to the right of +7

$\therefore (+ 7) + (+ 4) = + 11$



For 0, No movement for + 6 move 6 units right to zero.

$\therefore (0) + (+ 6) = + 6.$



For + 5 move 5 units to the right of 0, for 0 Nor movement.

$\therefore (+ 5) + 0 = + 5.$

Question 2.

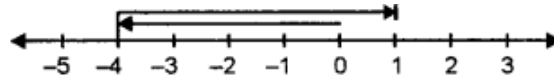
(i) $(-4) + (+5)$

(ii) $0 + (-2)$

(iii) $(-1) + (-4)$

Solution:

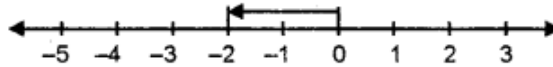
(i) $(-4) + (+5)$



For (-4) move 4 units to the left of 0, then for $+5$ move 5 units to the right of -4

$\therefore (-4) + (+5) = +1.$

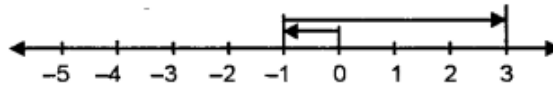
(ii) $0 + (-2)$



For 0 no movement then for -2 move 2 units to left of 0

$\therefore 0 + (-2) = -2.$

(iii) $(-1) + (+4)$



For -1 move 1 unit to the left of 0, then for $+4$ move 4 units to the right of -1 $\therefore (-1)$

$+ (+4) = +3.$

Question 3.

(i) $(+4) + (-2)$

(ii) $(+3) + (-6)$

(iii) $3 + (-7)$

Solution:

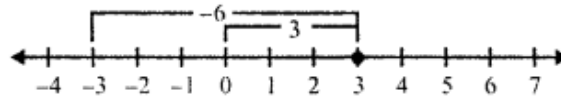
(i) $(+4) + (-2)$



For $+4$ move 4 units to the right of 0, then for (-2) move 2 units to the left of $+4$

$\therefore (+4) + (-2) = +2.$

(ii) $(+3) + (-6)$

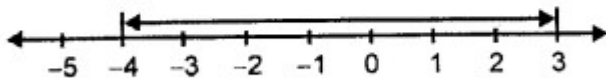


For $(+3)$, we move 3 unit right of 0 and then

For (-6) , we move 6 units left of 3, we get -3

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

(iii) $3 + (-7)$



For 3, we move 3 units right of 0 and then, for (-7) move 7 units to left of 3.

$\therefore 3 + (-7) = -4.$

Question 4.

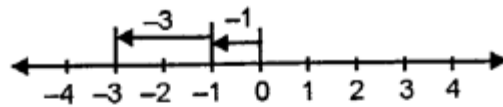
(i) $(-1) + (-2)$

(ii) $(-2) + (-5)$

(ii) $(-3) + (-4)$

Solution:

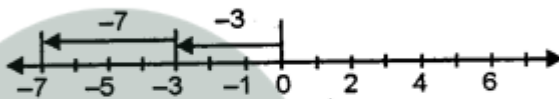
(i) $(-1) + (-2)$



for -1 , start from zero and move one unit to the left and then again for -2 , move 2 unit to left of -1 .

$$\therefore (-1) + (-2) = -3.$$

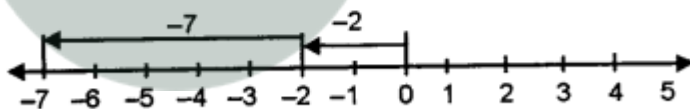
(ii) $(-3) + (-4)$



for -3 , start from zero and move 3 units to the left and then again for -4 , move 4 unit to left of -3 .

$$\therefore (-3) + (-4) = -7.$$

(iii) $(-2) + (-5)$



for -2 , start from zero and move 2 units to the left and then again for -5 , move 5 unit to left of -2 .

$$\therefore (-2) + (-5) = -7.$$

Question 5.

(i) $(+10) - (+2)$

(ii) $(+8) - (-5)$

(iii) $(-6) - (+2)$

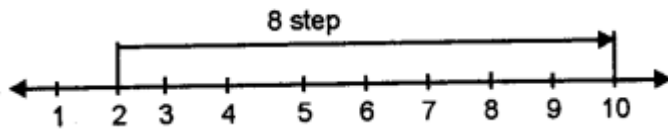
(iv) $(-7) - (+5)$

(v) $(+4) - (-2)$

(vi) $(-8) - (-4)$

Solution:

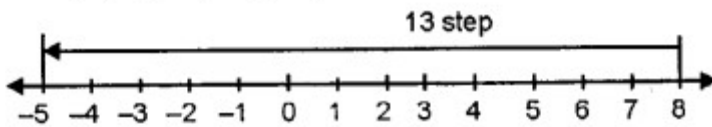
$$(i) (+10) - (+2)$$



From + 2, to reach the position of number + 10, we find 8 steps to the rights.

$$\therefore (+10) - (+2) = +8$$

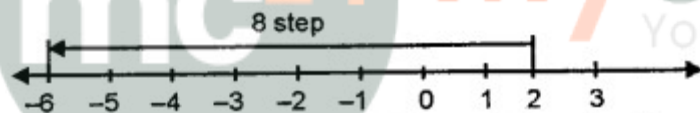
$$(ii) (+8) - (-5)$$



Starting from the position of - 5, count the number of steps needed to reach + 8, we find 13 steps towards right.

$$\therefore (+8) - (-5) = +13$$

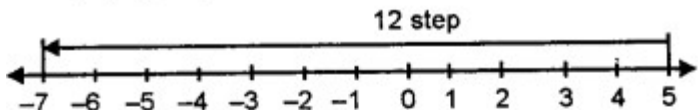
$$(iii) (-6) - (+2)$$



Marking the position of 6, and + 2 on the number line count step from position + 2 to left - 6, there are 8 steps

$$\therefore (-6) - (+2) = -8$$

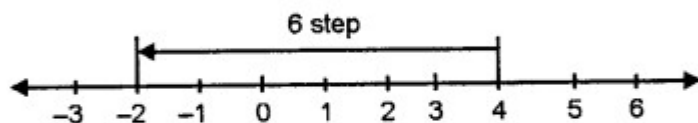
(iv) $(-7) - (+5)$



Marking -7 and $+5$, from $+5$ position count steps towards left to -7 , there are 12 steps

$$\therefore (-7) - (+5) = -12$$

(v) $(+4) - (-2)$

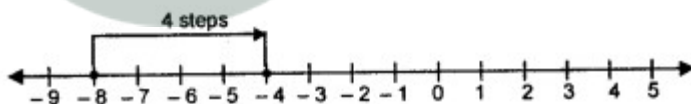


Marking $(+4)$ (-2) from $+4$ position count steps toward left to -2 . There are 6 steps.

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

(vi) $(-8) - (-4)$

Draw a number line and mark (-8) on it. Now mark (-4) on the same line. Now count from -8 to -4 , which is -4 as shown.



Question 6.

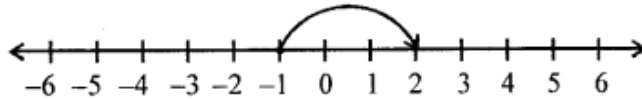
Using a number line, find the integer which is :

- (i) 3 more than -1
- (ii) 5 less than 2
- (iii) 5 more than -9
- (iv) 4 less than -4
- (v) 7 more than 0
- (vi) 7 less than -8

Solution:

(i) 3 more than -1

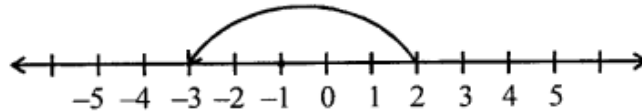
To get 3 more than -1 , start from -1 and then move 3 units to the right of -1 to get 2.



\therefore 3 more than -1 is 2

(ii) 5 less than 2

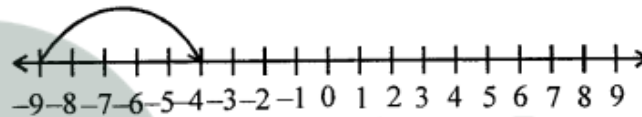
To get 5 less than 2, start from 2 and then move 5 units to the left of 2 to get -3 .



\therefore 5 more than 2 is -3

(iii) 5 more than -9

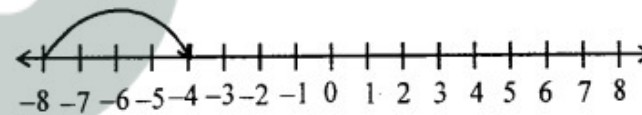
To get 5 more than -9 , start from -9 and then move 5 units to the right of -9 to get -4 .



\therefore 5 more than -9 is -4

(iv) 4 less than -4

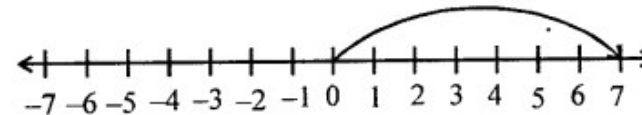
To get 4 less than -4 , start from -4 and then move 4 units to the left of -4 to get -8 .



\therefore 4 less than -4 is -8

(v) 7 more than 0

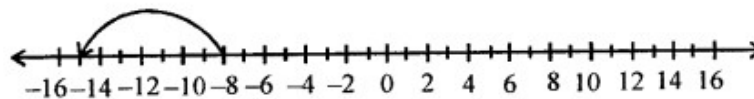
To get 7 more than 0, start from 7 and then move 7 units to the right of 7 to get 7.



\therefore 7 more than 0 is 7

(vi) 7 less than -8

To get 7 less than -8 , start from -8 and then move 7 units to the left of -8 to get -15 .



\therefore 7 less than -8 is -15

REVISION EXERCISE

Question 1.

Fill in the blanks :

- (i) 5 is than -2 and -5 is..... than 2.
- (ii) -3 is than 0 and 3 is.....than 0.
- (iii) on a number line, if x is to the left of y, then x isthan y.
- (iv) on a number line if x is to the right of y, then y is..... than x.

Solution:

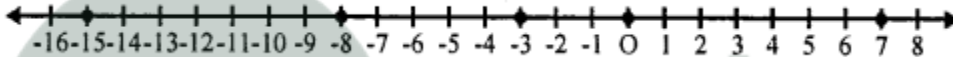
- (i) 5 is **greater** than -2 and -5 is **less** than 2.
- (ii) -3 is **less** than 0 and 3 is **greater** than 0.
- (iii) On a number line, if x is to the left of y, then x is **less** than y.
- (iv) On a number line, x is to the right of y, then y is **less** than x.

Question 2.

Using a number line, write the numbers -15, 7, 0, -8 and -3 in ascending order of value.

Solution:

On the given number line, we mark the numbers -15, 7, 0, -8 and -3 on it, we see that



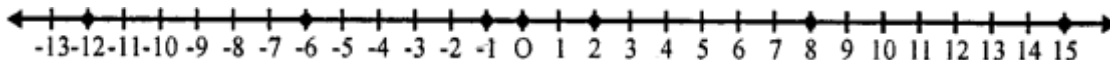
We see that $-15 < -8 < -3 < 0 < 7$
-15, -8, -3, 0, 7 are in ascending order

Question 3.

Using a number line, write the numbers 8, -6, 2, -12, 0, 15 and -1 in descending order of value.

Solution:

On the given number line, we mark the numbers 8, -6, 2, -12, 0, 15 and -1 on it



We see that

$15 > 8 > 2 > 0 > -1 > -6 > -12$

15, 8, 2, 0, -1, -6, -12 are in descending order

Question 4.

Using a number line, evaluate :

- (i) $(+5) + (+4)$
- (ii) $(+6) + (+8)$
- (iii) $(-3) + (+5)$
- (iv) $(-3) + (+7)$
- (v) $(+6) + (-2)$
- (vi) $(-3) + (+3)$
- (vii) $(-5) + (-5)$
- (viii) $(-7) + (-1)$

- (ix) $(+6) - (+2)$
 (x) $(+5) - (-3)$
 (xi) $(+4) - (-1)$
 (xii) $(-7) - (-2)$

Solution:

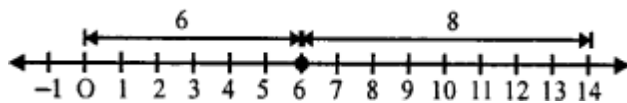
(i) $(+5) + (+4)$



First of all, we move 5 units to the right of zero then for $(+4)$, move 4 units right of 5, then we reach at 9, then

$(+5) + (+4) = +9$

(ii) $(+6) + (+8)$

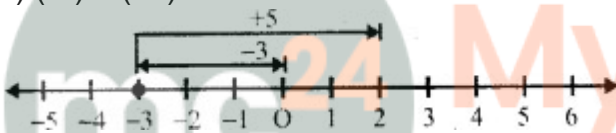


First of all, we move 6 units to the right of zero then for $(+8)$, we move 8 units to the right of $(+6)$

Then we reach at +14, then

$(+6) + (+8) = +14$

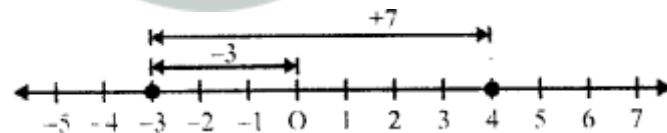
(iii) $(-3) + (+5)$



First of all for (-3) we move, 3 units to the left of zero, then move $(+5)$ units to the right of (-3) , then we reach at $(+2)$, then

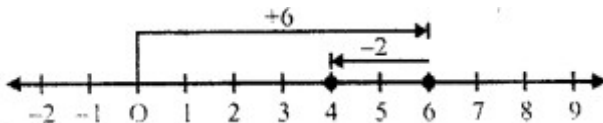
$(-3) + (+5) = -3 + 5 = 2$

(iv) $(-3) + (+7)$



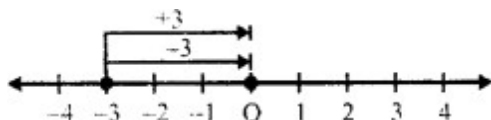
First of all, we move for (-3) 3 unit to the left of zero and then for $(+7)$, we move 7 units to the right of (-3) reaching +4 Then $(-3) + (+7) = +4$

(v) $(+6) + (-2)$



First of all, we move for $(+6)$, 6 units to the right of zero and then for (-2) , move 2 units to the left of 6, then we reach 4 Then $(+6) + (-2) = 6 - 2 = 4$

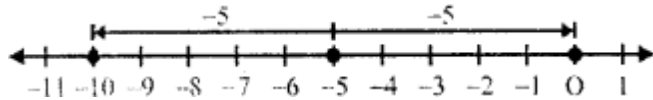
(vi) $(-3) + (+3)$



First of all for (-3) , we move 3 units left of zero and then for $(+3)$ we move 3 unit right of (-3) reaching at 0

So, $(-3) + (+3) = 0$

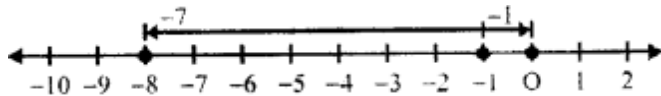
(vii) $(-5) + (-5)$



First of all for -5 , we move 5 units to left of zero and then for (-5) , we move 5 units to left of (-5) reaching at -10

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

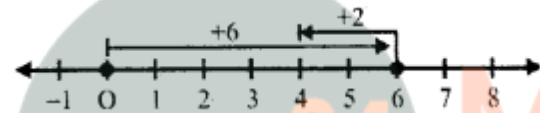
(viii) $(-7) + (-1)$



First of all for -7 , we move 7 units left of zero and then for (-1) we move 1 unit left of -7 reaching -8

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

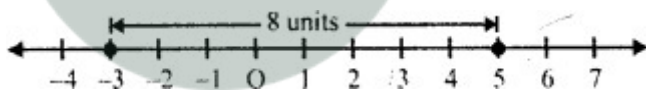
(ix) $(+6) - (+2)$



First of all for $(+6)$ we move 6 units right of 0 and then for $(+2)$, we move 2 units left of 6 reaching 4

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

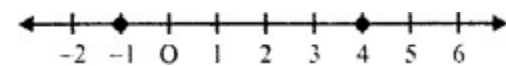
(x) $(+5) - (-3)$



Mark the points $(+5)$ and (-3) on the same number line. We see that the position of (-3) is 8 units from $(+5)$ to its right 3.

$(+5) - (-3) = 5 + 3 = 8$

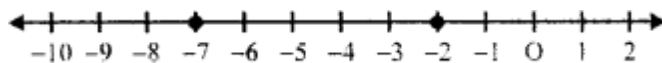
(xi) $(+4) - (-1)$



Mark the points $(+4)$ and (-1) on the same number line, we see that the position of (-1) is 5 units from $(+4)$ to its right

$(+4) - (-1) = 4 + 1 = 5$

(xii) $(-7) - (-2)$



Mark the points (-7) and (-2) on the same number line, we see that (-2) is 5 units on the left (-2)

$-7 - (-2) = -7 + 2 = -5$