Practice Time (Page 109)

1. North	(a) South-east
2. North-west	(b) West
3. South-west	(c) North-east
4. East	(d) South

Exercise-1

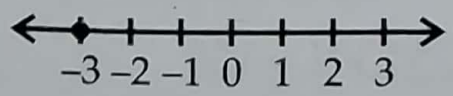
1. (a) (i) Integer –6 is 7 units away from 1 on the number line.

(b) (i) $|9 - 8| = |1| = 1$, $|-6| + |-3| = 6 + 3 = 9$, $7 + |-4| = 7 + 4 = 11$, $|1 + (-4)| = |-3| = 3$

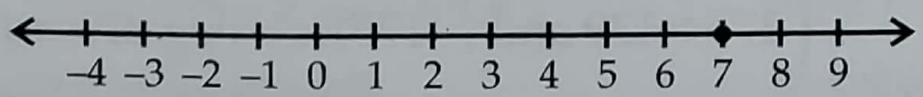
So, $|9 - 8|$ has the least value.

(c) (ii) Absolute value of 0 is 0.

2. (a)

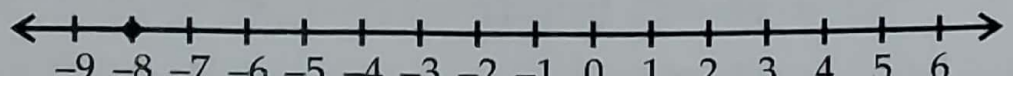


(b)



(c)

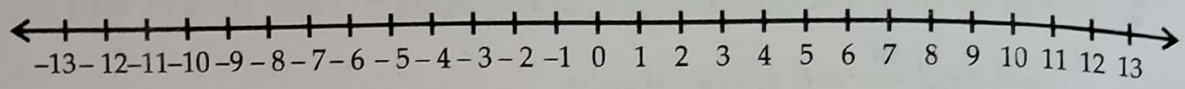
(d)



Scanned with OKEN Scanner

3. (a) $-1, 0, 1$ (b) $-4, -3, -2, -1$ (c) $-13, -12, -11, -10, -9, -8, -7$

4. $1, 0, -1, -2, -3$

5. 

(a) $-3 \boxed{<} 0$ [-3 is on the left of 0.]

(b) $6 \boxed{>} -8$ [6 is on the right of -8.]

(c) $-12 \boxed{<} -11$ [-12 is on the left of -11.]

(d) $-4 \boxed{<} 4$ [-4 is on the left of 4.]

(e) $-9 \boxed{>} -13$ [-9 is on the right of -13.]

(f) $-6 \boxed{=} -6$

6. (a) $-9 < -4 < -1 < 6 < 7 < 11$

(b) $-25 < -20 < -10 < 0 < 12 < 35$

7. (a) $21 > 9 > 0 > -8 > -18 > -24$

(b) $-11 > -13 > -15 > -18 > -28 > -41$

Exercise-2

1. (a) (iii) The integer succeeding -156 is $-156 + 1 = -155$.

(b) (ii) We take the distance towards north direction as positive, and towards south direction as negative.

139 km towards north = +139 km

175 km towards south = –175 km

Therefore, the position at the end of the journey

$= 139 + (-175) = -36$ km

$$\left[\because |-175| = 175,\ |139| = 139 \right.$$
$$\left. 175 > 139 \text{ and } (-175) \text{ is a negative integer.}\right]$$

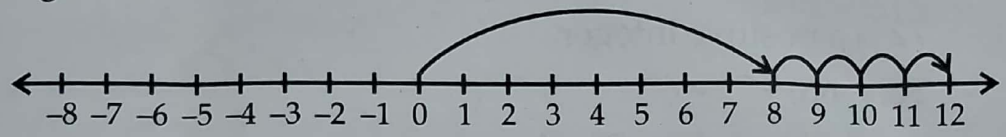
Thus, his position from the starting point is 36 km south.

(c) (iii) A pair of integers whose sum is -5 is $-3, -2$.

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

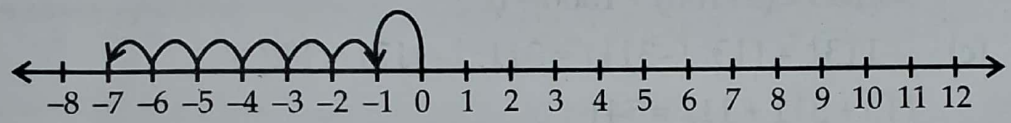
Scanned with OKEN Scanner

2. **(a)** Both 8 and 4 are positive integers. So, we move 4 steps to the right of 8.



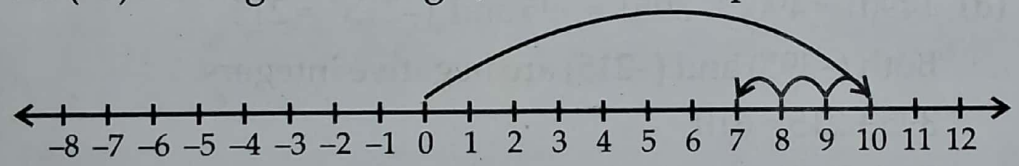
$8 + 4 = 12$

(b) Both (–1) and (–6) are negative integers. So, we move 6 steps to the left of (–1).



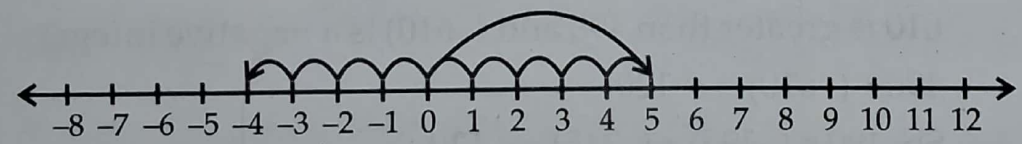
$(-1) + (-6) = -7$

(c) As (–3) is a negative integer, we move 3 steps to the left of 10.



$10 + (-3) = 7$

(d) As (–9) is a negative integer, we move 9 steps to the left of 5.



$5 + (-9) = -4$

3. **(a)** $|-9| = 9$, $|15| = 15$
15 is greater than 9 and 15 is a positive integer.
$15 - 9 = 6$
So, $-9 + 15 = 6$

(b) $|-8| = 8$ and $|-5| = 5$
As, both (–8) and (–5) are negative integers.
$8 + 5 = 13$
So, $(-8) + (-5) = -13$

(c) $|35| = 35$ and $|-17| = 17$
Here, $35 > 17$ and 35 is a positive integer.
$35 - 17 = 18$
So, $35 + (-17) = 18$

(d) $|-13| = 13$, $|-23| = 23$
Both (–13) and (–23) are negative integers.
$23 + 13 = 36$
So, $-13 + (-23) = -36$

4. **(a)** $|-25| = 25$, $|-41| = 41$ and $25 + 41 = 66$
But both are negative integers. So, $(-25) + (-41) = -66$

Scanned with OKEN Scanner

$|-66| = 66$, $|72| = 72$

$72 - 66 = 6$

72 is a positive integer.

So, $(-66) + 72 = 6$

So, $(-25) + (-41) + 72 = 6$

(b) $100 + (-1100) + 1000 = 1100 + (-1100)$

$|1100| = 1100$, $|-1100| = 1100$

$1100 - 1100 = 0$

So, $100 + (-1100) + 1000 = 0$

(c) $|-113| = 113$, $|-311| = 311$, $|-117| = 117$

$113 + 311 + 117 = 541$

Each of these is a negative integer.

So, $(-113) + (-311) + (-117) = -541$

(d) $|490| = 490$, $|-395| = 395$ and $|-215| = 215$

Both (-395) and (-215) are negative integers.

$395 + 215 = 610$

So, $(-395) + (-215) = -610$

Now, we have $490 + (-610)$

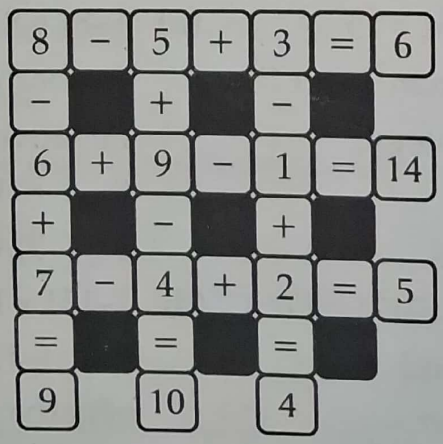
$|-610| = 610$

610 is greater than 490 and (-610) is a negative integer.

$490 + (-610) = -120$

So, $490 + (-395) + (-215) = -120$

Puzzle (Page 115)



Exercise-3

1. (a) (iv) The other integer $= (-25) - 32$

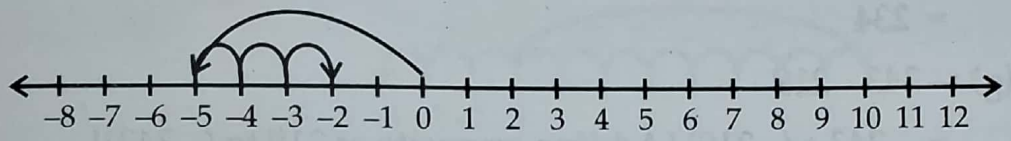
$= -25 - 32 = -57$

(b) (i) 2 steps backward

Scanned with OKEN Scanner

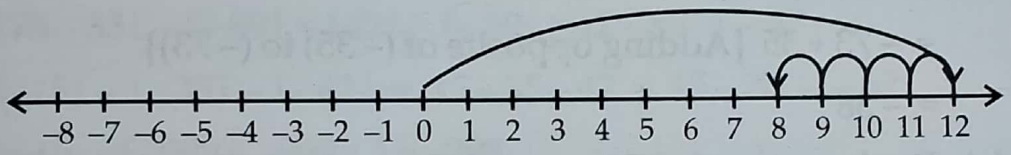
2. **(a)** $-5-(-3) = -5+3 = -2$

[Adding 3 which is opposite of (–3) to (–5)]



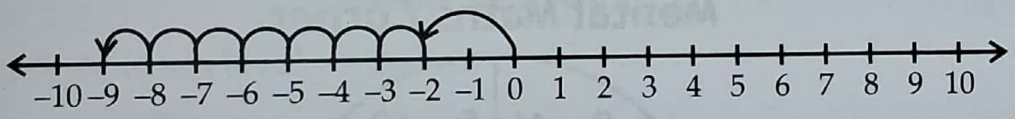
(b) $12-4 = 12+(-4) = 8$

[Adding (–4) which is opposite of 4 to 12.]



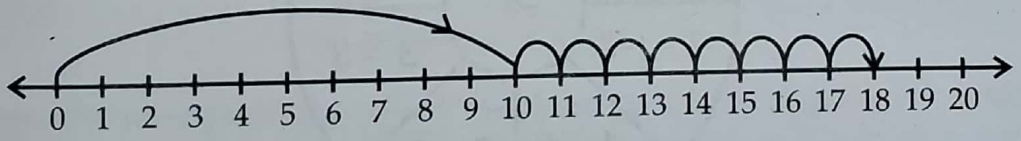
(c) $-2-7 = -2+(-7) = -9$

[Adding (–7) which is opposite of 7 to (–2).]



(d) $10-(-8) = 10+8 = 18$

[Adding 8 which is opposite of (– 8) to 10.]



3. **(a)** $193 - (-77)$

$= 193+77$ [Adding opposite of – 77 to 193]

$= 270$

(b) $-23 - 18$

$= -23+(-18)$ [Adding opposite of 18 to (– 23)]

$= -41$

(c) $-53-(-19)$

$= -53+19$ [Adding opposite of (– 19) to (– 53)]

$= -34$

(d) $-149-(-149)$

$= -149+149$ [Adding opposite of (– 149) to (– 149)]

$= 0$

(e) $-83-0$

$= -83$

Scanned with OKEN Scanner

(f) $78 - (-156)$

$= 78 + 156$ [Adding opposite of (-156) to 78]

$= 234$

(g) $-343 - 219$

$= -343 + (-219)$ [Adding opposite of 219 to (-343)]

$= -562$

(h) $-73 - (-35)$

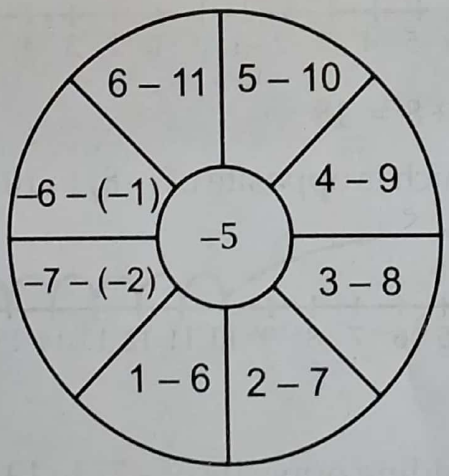
$= -73 + 35$ [Adding opposite of (-35) to (-73)]

$= -38$

4. (a) Predecessor of $-339 = -339 - 1 = -340$

(b) Predecessor of $178 = 178 - 1 = 177$

Mental Maths Corner



Review Exercise

1. (a) (ii) $0 > -8$ is true.

(b) (ii) $-28 + (-35) + 98 = (-63) + 98 = 35$

$-110 + 215 + 338 = -110 + 553 = 443$

$-83 - (-32) + (-45) = -83 + (-45) - (-32) = -128 - (-32)$

$= -128 + 32 = -96$

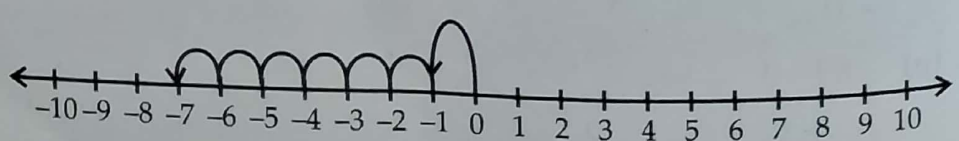
$65 - (-93) + 42 = 107 - (-93) = 107 + 93 = 200$

So, $-110 + 215 + 338$ has the greatest value.

(c) (i) P and R represent negative integers.

2. (a) $-1 + (-6) = -7$

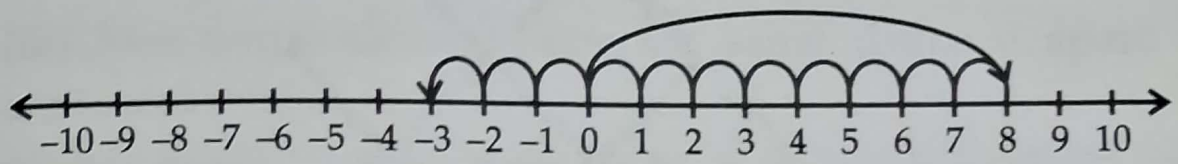
We move 6 steps to the left of -1.



Scanned with OKEN Scanner

(b) $8+(-11) = 8-11 = -3$

[As (-11) is a negative integer, we move 11 steps to the left of 8.]



3. **(a)** $-35 < -28 < -1 < 0 < 14 < 47$ **(b)** $-41 > -53 > -63 > -72 > -81 > -99$

4. **(a)** $|-11| + |-32| = 11 + 32 = 43$

(b) $|75-33| - |-89| = |42| - |-89| = 42 - 89 = -47$

(c) $|-15| - |-35| - |-42| = 15 - 35 - 42 = 15 - 77 = -62$

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

Predecessor of $-999 = -999 - 1 = -1000$

Brain Teaser

1. 200 m below sea level $= -200$ m

It ascends 150 m.

New position of submarine

$= -200 + 150 = -50$

$= 50$ m below sea level

Thus, the new position of the submarine is 50 m below sea level.

2. Required number of years $= 63 + 14 = 77$

So, the Roman emperor lived 77 years.

Scanned with OKEN Scanner