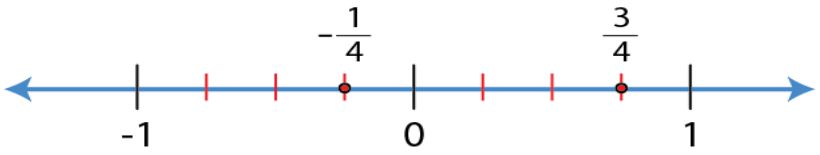
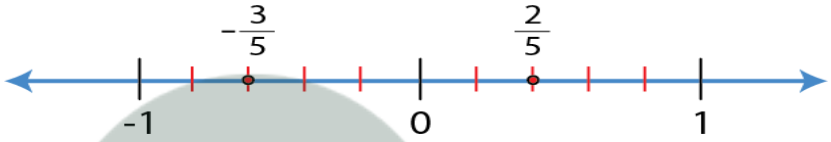
EXERCISE 2B

1. Mark the following pairs of rational numbers on the separate number lines:
(i) 3/4 and -1/4
(ii) 2/5 and -3/5
(iii) 5/6 and -2/3
(iv) 2/5 and -4/5
(v) 1/4 and -5/4
Solution:

(i) 3/4 and -1/4

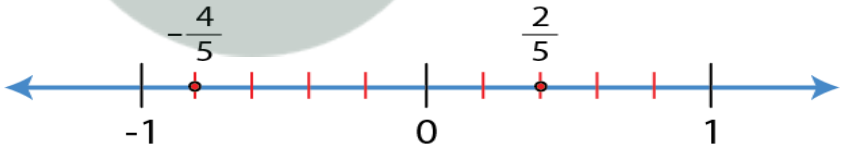


(ii) 2/5 and -3/5

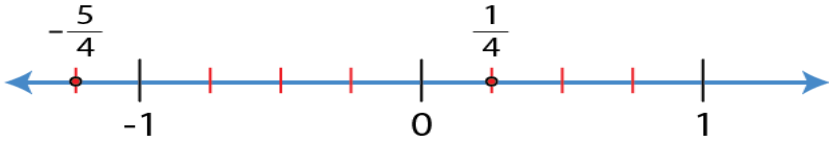


(iii) 5/6 and -2/3

(iv) 2/5 and -4/5

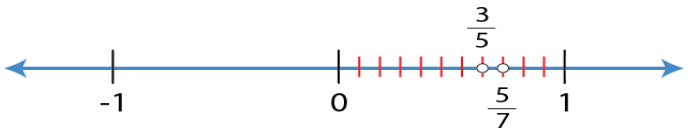


(v) 1/4 and -5/4



2. Compare:
(i) 3/5 and 5/7
(ii) -7/2 and 5/2
(iii) -3 and 2 ¾
(iv) – 1 ½ and 0
(v) 0 and 3/4
(vi) 3 and -1
Solution:

(i) 3/5 and 5/7



5/7 is on the right side of the number line.
Hence, 3/5 < 5/7.

(ii) -7/2 and 5/2

P is on the right of Q
Hence, -7/2 < 5/2.

(iii) -3 and 2 ¾

P is on the right of Q
Hence, -3 < 11/4 or – 3 < 2 ¾.

(iv) – 1 ½ and 0

P is on the right of Q
Hence, -3/2 < 0 or – 1 ½ < 0.

(v) 0 and ¾

P is on the right of Q
Hence, 0 < 3/4.

(vi) 3 and -1

P is on the right of Q
Hence, 3 > - 1.

3. Compare:
(i) -1/4 and 0

(ii) 1/4 and 0
(iii) -3/8 and 2/5
(iv) -5/8 and 7/-12
(v) 5/-9 and -5/-9
(vi) -7/8 and 5/-6
(vii) 2/7 and -3/-8
Solution:

(i) -1/4 and 0
-1/4 is a negative rational number which is always less than 0.
Hence, -1/4 < 0.

(ii) 1/4 and 0
1/4 is a positive rational number which is always greater than 0.
Hence, 1/4 > 0.

(iii) -3/8 and 2/5
We know that
a/b and c/d = a × d and b × c
So we get
a × d < b × c
Substituting the values
- 3 × 5 and 2 × 8
- 15 < 16
Hence, -3/8 < 2/5.

(iv) -5/8 and 7/-12
It can be written as
-5/ 8 and -7/12
We know that
a/b and c/d = a × d and b × c
So we get
a × d < b × c
Substituting the values
- 5 × 12 and - 7 × 8
-60 < - 56
Hence, -5/8 < 7/-12.

(v) 5/-9 and -5/-9
We know that
a/b and c/d = a × d and b × c
So we get
a × d < b × c
Substituting the values
5 × -9 and -5 × -9
- 45 < 45
Hence, 5/-9 < -5/-9.

(vi) -7/8 and 5/-6
It can be written as

-7/ 8 and -5/6
We know that
a/b and c/d = a × d and b × c
So we get
a × d < b × c
Substituting the values
- 7 × 6 and -5 × 8
-42 < -40
Hence, -7/8 < 5/-6.

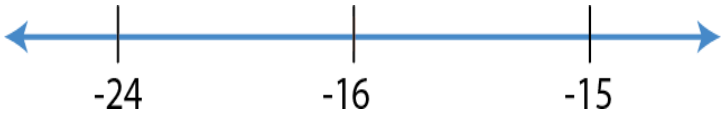
(vii) 2/7 and -3/-8
It can be written as
2/7 and 3/8
We know that
a/b and c/d = a × d and b × c
So we get
a × d < b × c
Substituting the values
2 × 8 and 7 × 3
16 < 21
Hence, 2/7 < - 3/ -8.

4. Arrange the given rational numbers in ascending order:
(i) 7/10, -11/-30 and 5/-15
(ii) 4/-9, -5/12 and 2/-3
Solution:

(i) 7/10, -11/-30 and 5/-15
It is given that
= 7/10, -11/-30 and -5/-5
LCM of 10, 30 and 15 = 30
= (7 × 3)/ (10 × 3), 11/30 and (-5 × 2)/ (15 × 2)
So we get
= 21/30, 11/30 and -10/30

Here, -10 < 11 < 21
We can write it as
-10/ 30 < 11/30 < 21/30
By further calculation
5/ -15 < -11/ -30 < 7/10

(ii) 4/-9, -5/12 and 2/-3
It is given that
= -4/9, -5/12 and -2/3
LCM of 9, 12 and 3 is 36
= (-4 × 4)/ (9 × 4), (-5 × 3)/ (12 × 3) and (-2 × 12)/ (3 × 12)
So we get
= -16/36, -15/36 and -24/36



Here, -24 < -16 < -15
We can write it as
-24/36 < -16/36 < -15/36
By further calculation
2/ -3 < 4/ -9 < -5/12

5. Arrange the given rational numbers in descending order:
(i) 5/8, 13/-16 and -7/12
(ii) 3/-10, -13/30 and 8/-20
Solution:

(i) 5/8, 13/-16 and -7/12
It can be written as
= 5/8, -13/16 and -7/12
LCM of 8, 16 and 12 is 48
= (5 × 6)/ (8 × 6), (-13 × 3)/ (16 × 3) and (-7 × 4)/ (12 × 4)
So we get
= 30/48, -39/48 and -28/48

Here, 30 > - 28 > - 39
We can write it as
30/48 > -28/48 > -39/48
By further calculation
5/8 > -7/12 > 13/-16

(ii) 3/-10, -13/30 and 8/-20
It can be written as
= -3/10, -13/30 and -8/20
LCM of 10, 20 and 30 is 60
= (- 3 × 6)/ (10 × 6), (-13 × 2)/ (30 × 2) and (-8 × 3)/ (20 × 3)
So we get
= -18/60, -26/60 and -24/60

Here, -18 > -24 > -26
We can write it as
-18/60 > -24/60 > -26/60
By further calculation
3/ -10 > 8/-20 > -13/30

6. Fill in the blanks:
(i) 5/8 and 3/10 are on the ……. side of zero.

(ii) -5/8 and 3/10 are on the.....sides of zero.
(iii) -5/8 and -3/10 are on the ..... side of zero.
(iv) 5/8 and -3/10 are on the.....sides of zero.
Solution:

(i) 5/8 and 3/10 are on the same side of zero.

(ii) -5/8 and 3/10 are on the opposite sides of zero.

(iii) -5/8 and -3/10 are on the same side of zero.

(iv) 5/8 and -3/10 are on the opposite sides of zero.