

RD SHARMA

Solutions

Class 7 Maths

Chapter 4

Ex 4.6

Q 1. Draw the number line and represent the following rational numbers on it :

(i) $2/3$

(ii) $3/4$

(iii) $3/8$

(iv) $-5/8$

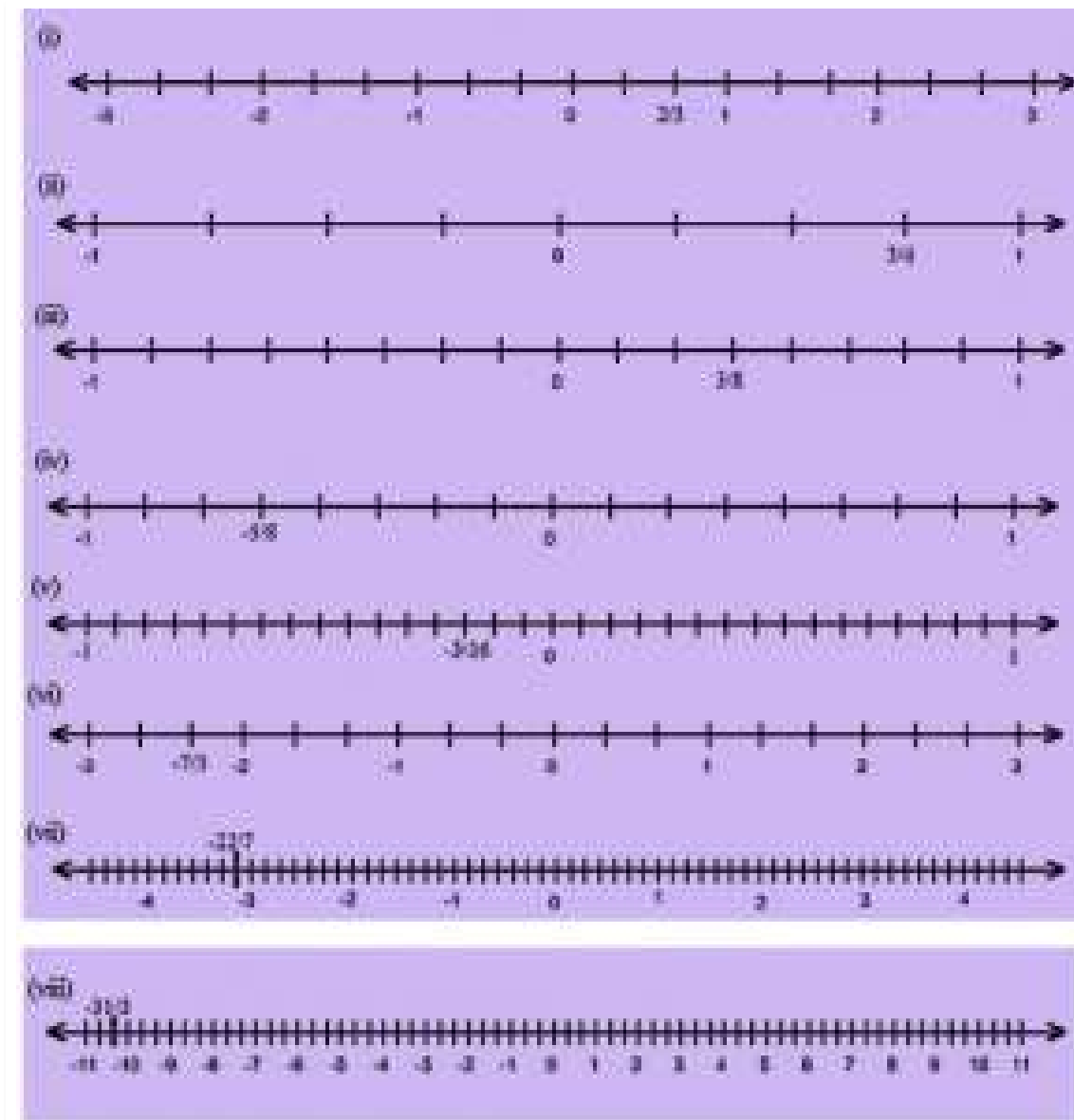
(v) $-3/16$

(vi) $-7/3$

(vii) $22/7$

(viii) $-31/3$

SOLUTION :



Q 2. Which of the two rational numbers in each of the following pairs of rational numbers is greater ?

(i) $-3/8$, 0

(ii) $5/2$, 0

(iii) $-4/11$, $3/11$

(iv) $-7/12$, $5/8$

(v) $4/9$, $-3/7$

(vi) $-5/8$, $3/4$

(vii) $5/9$, $-3/-8$

(viii) $5/-8$, $-7/12$

SOLUTION :

(i) We know that every positive rational number is greater than zero and every negative rational number is smaller than zero . Thus , $-3/8 > 0$

(ii) $5/2 > 0$. Because every positive rational number is greater than zero and every negative rational number is smaller than zero .

(iii) $-4/11 < 3/11$. Because every positive rational number is greater than zero and every negative rational number is smaller than zero .

(iv) $-7/12 = (-7 \times 2)/(12 \times 2) = -14/24$ and $5/-8 = (-5 \times 3)/(8 \times 3) = -15/24$

Therefore $-7/12 > 5/-8$

(v) $4/-9 = (-4 \times 7)/(9 \times 7) = -28/63$ and $-3/-7 = (3 \times 7)/(7 \times 9) = 21/63$

Therefore , $4/-9 < -3/-7$

(vi) $-5/8$ and $3/-4 = (-3 \times 2)/(4 \times 2) = -6/8$

Therefore , $-5/8 > 3/-4$

(vii) $5/9 = (5 \times 8)/(9 \times 8) = 40/72$ and $-3/-8 = (3 \times 9)/(8 \times 9) = 27/72$

Therefore , $5/9 > -3/-8$

(viii) $-7/12 = (-7 \times 2)/(12 \times 2) = -14/24$ and $5/-8 = (-5 \times 3)/(8 \times 3) = -15/24$

Therefore , $7/12 > 5/-8$

Q 3. Fill in the blanks by the correct symbol out $>$, $=$, or $<$:

(i) ,

(ii) , 3

(iii) ,

(iv) , -3

SOLUTION :

(i) $-6/-13 = 6/13 < 7/13$

(ii) $16/-5 < 3$

(iii) $-4/3 = (-4 \times 7)/(3 \times 7) = -28/21$ and $8/-7 = (-8 \times 3)/(7 \times 3) = -24/21$

Therefore , $-4/3 < 8/-7$

(iv) $-12/5$ and $-3 = (-3 \times 5)/(1 \times 5) = -15/5$

Therefore $-12/5 > -3$

Q 4. Fill in the blanks by the correct symbol out of $>$, $=$, or $<$:

(i)

(ii)

(iii)

(iv)

SOLUTION :

(i) Because every positive number is greater than a negative number , $-6/7 < 7/13$.

(ii) On multiplying $-3/5$ by $6/6$, we get $-18/30$.

On multiplying $-5/6$ by $5/5$, we get $-25/30$.

Because $-18 > -25$, $-35 > -56$

(iii) On multiplying $-2/3$ by $8/8$, we get $-16/24$.

On multiplying $5/-8$ by $3/3$, we get $15/-24 = -15/24$.

Because $-15 > -16$, $-2/3 < 5/-8$.

(iv) Because every positive number is greater than a negative number , $0 > -2/5$.

Q 5 . Arrange the following rational numbers in ascending order :

(i) , , ,

(ii) , , ,

SOLUTION :

(i) Ascending order:

Since , LCM of 5 , -30 , -15 , 10 is 30 .

Multiplying the numerators and denominators to get the denominator equal to the LCM $3/5 = (3 \times 6)/(5 \times 6) = 18/30$, $17/30 = (17 \times 1)/(30 \times 1) = 17/30$, $8/-15 = (-8 \times 2)/(15 \times 2) = -16/30$, $-7/10 = (-7 \times 3)/(10 \times 3) = -21/30$.

Order is $-21 < -16 < 17 < 18$.

Order is $-7/10 < 8/-15 < 17/30 < 3/5$.

(ii) Since , LCM of 9 , -12 , -18 , 3 is 36 .

Multiplying the numerators and denominators to get the denominator equal to the LCM ,

$-4/9 = (-4 \times 4)/(9 \times 4) = -16/36$, $5/-12 = (-5 \times 3)/(12 \times 3) = -15/36$, $7/-18 = (-7 \times 2)/(8 \times 2) = -14/36$, $2/-3 = (-2 \times 12)/(3 \times 12) = -24/36$.

Order is $-24 < -16 < -15 < -14$. Order is $2/-3 < -4/9 < 5/-12 < 7/-18$.

Q 6 . Arrange the following rational numbers in descending order :

(i) , , , ,

(ii) , , ,

SOLUTION :

We have to arrange them in descending order.

(i) Since , LCM of 8 , 16 , -12 , -4 , 28 is 336 .

Multiplying the numerators and denominators , to get the denominator equal to the LCM , $7/8 = (7 \times 42)/(8 \times 42) = 294/336$, $64/16 = (64 \times 21)/(16 \times 21) = 1344/336$, $36/-12 = (-36 \times 28)/(12 \times 28) = -1008/336$, $5/-4 = (-5 \times 84)/(4 \times 84) = -420/336$, $140/28 = (140 \times 12)/(28 \times 12) = 1680/336$.

Order is $1680 > 1344 > 294 > -420 > -1008$. Order is $4 > 36 > -12$.

Order is $140/28 > 64/16 > 7/8 > 5/-4 > 36/-12$

(ii) Since , LCM of 10 , -30 , -15 , 20 is 60 .

Multiplying the numerators and denominators , to get the denominator equal to LCM ,

$-3/10 = (-3 \times 6)/(10 \times 6) = -18/60$, $17/-30 = (-17 \times 2)/(30 \times 2) = -34/60$, $7/-15 = (-7 \times 4)/(15 \times 4) = -28/60$, $-11/20 = (-11 \times 3)/(20 \times 3) = -33/60$.

Order is , $-18 > -28 > -33 > -34$.

Order is $-3/10 > 7/-15 > -11/20 > 17/-30$.

Q 7 . Which of the following statements are true :

(i) The rational number lies to the left of zero on the number line .

(ii) The rational number lies to the left of zero on the number line .

(iii) The rational number lies to the right of zero on the number line .

(iv) The rational number and are on the opposite side of zero on the number line .

(v) The rational number and are on the opposite side of zero on the number line .

(vi) The rational number is on the right of on the number line .

SOLUTION :

(i) False ; it lies to the right of zero because it is a positive number .

(ii) False ; it lies to the right of zero because it is a positive number .

(iii) True

(iv) True ; they are of opposite signs .

(v) False ; they both are of same signs .

(vi) True ; they both are of opposite signs and positive number is greater than the negative number . Thus , it is on the right of the negative number .