RD Sharma Solutions For Class 7 Chapter 5 Operations On Rational Numbers

1. Add the following rational numbers:

(i) (-5/7) and (3/7)

(ii) (-15/4) and (7/4)

(iii) (-8/11) and (-4/11)

(iv) (6/13) and (-9/13)

Solution:

(i) Given (-5/7) and (3/7)

= (-5/7) + (3/7)

Here denominators are same so add the numerator

= ((-5+3)/7)

= (-2/7)

(ii) Given (-15/4) and (7/4)

= (-15/4) + (7/4)

Here denominators are same so add the numerator

= ((-15 + 7)/4)

= (-8/4)

On simplifying

= -2

(iii) Given (-8/11) and (-4/11)

= (-8/11) + (-4/11)

Here denominators are same so add the numerator

= (-8 + (-4))/11

= (-12/11)

(iv) Given (6/13) and (-9/13)

= (6/13) + (-9/13)

Here denominators are same so add the numerator

= (6 + (-9))/13

= (-3/13)

2. Add the following rational numbers:

Aakash Institute

(i) (3/4) and (-3/5)

(ii) -3 and (3/5)

(iii) (-7/27) and (11/18)

(iv) (31/-4) and (-5/8)

Solution:

(i) Given (3/4) and (-3/5)

If p/q and r/s are two rational numbers such that q and s do not have a common factor other than one, then

(p/q) + (r/s) = (p × s + r × q)/ (q × s)

(3/4) + (-3/5) = (3 × 5 + (-3) × 4)/ (4 × 5)

= (15 – 12)/ 20

= (3/20)

(ii) Given -3 and (3/5)

If p/q and r/s are two rational numbers such that q and s do not have a common factor other than one, then

(p/q) + (r/s) = (p × s + r × q)/ (q × s)

(-3/1) + (3/5) = (-3 × 5 + 3 × 1)/ (1 × 5)

= (-15 + 3)/ 5

= (-12/5)

(iii) Given (-7/27) and (11/18)

LCM of 27 and 18 is 54

(-7/27) = (-7/27) × (2/2) = (-14/54)

(11/18) = (11/18) × (3/3) = (33/54)

(-7/27) + (11/18) = (-14 + 33)/54

= (19/54)

(iv) Given (31/-4) and (-5/8)

LCM of -4 and 8 is 8

(31/-4) = (31/-4) × (2/2) = (62/-8)

(31/-4) + (-5/8) = (-62 – 5)/8

= (-67/8)

3. Simplify:

(i) (8/9) + (-11/6)

(ii) (-5/16) + (7/24)

(iii) (1/-12) + (2/-15)

Aakash Institute

(iv) (-8/19) + (-4/57)

Solution:

(i) Given (8/9) + (-11/6)

The LCM of 9 and 6 is 18

(8/9) = (8/9) × (2/2) = (16/18)

(-11/6) = (-11/6) × (3/3) = (-33/18)

= (16 – 33)/18

= (-17/18)

(ii) Given (-5/16) + (7/24)

The LCM of 16 and 24 is 48

Now (-5/16) = (-5/16) × (3/3) = (-15/48)

Consider (7/24) = (7/24) × (2/2) = (14/48)

(-5/16) + (7/24) = (-15/48) + (14/48)

= (14 – 15) /48

= (-1/48)

(iii) Given (1/-12) + (2/-15)

The LCM of 12 and 15 is 60

Consider (-1/12) = (-1/12) × (5/5) = (-5/60)

Now (2/-15) = (-2/15) × (4/4) = (-8/60)

(1/-12) + (2/-15) = (-5/60) + (-8/60)

= (-5 – 8)/60

= (-13/60)

(iv) Given (-8/19) + (-4/57)

The LCM of 19 and 57 is 57

Consider (-8/57) = (-8/57) × (3/3) = (-24/57)

(-8/19) + (-4/57) = (-24/57) + (-4/57)

= (-24 – 4)/57

= (-28/57)

4. Add and express the sum as mixed fraction:

(i) (-12/5) + (43/10)

(ii) (24/7) + (-11/4)

(iii) (-31/6) + (-27/8)

Solution:

Aakash Institute

(i) Given (-12/5) + (43/10)

The LCM of 5 and 10 is 10

Consider (-12/5) = (-12/5) × (2/2) = (-24/10)

(-12/5) + (43/10) = (-24/10) + (43/10)

= (-24 + 43)/10

= (19/10)

Now converting it into mixed fraction

= $1\frac{9}{10}$

(ii) Given (24/7) + (-11/4)

The LCM of 7 and 4 is 28

Consider (24/7) = (24/7) × (4/4) = (96/28)

Again (-11/4) = (-11/4) × (7/7) = (-77/28)

(24/7) + (-11/4) = (96/28) + (-77/28)

= (96 – 77)/28

= (19/28)

(iii) Given (-31/6) + (-27/8)

The LCM of 6 and 8 is 24

Consider (-31/6) = (-31/6) × (4/4) = (-124/24)

Again (-27/8) = (-27/8) × (3/3) = (-81/24)

(-31/6) + (-27/8) = (-124/24) + (-81/24)

= (-124 – 81)/24

= (-205/24)

Now converting it into mixed fraction

= $-8\frac{13}{24}$

Exercise 5.2 Page No: 5.7

1. Subtract the first rational number from the second in each of the following:

(i) (3/8), (5/8)

(ii) (-7/9), (4/9)

(iii) (-2/11), (-9/11)

(iv) (11/13), (-4/13)

Solution:

Aakash Institute

(i) Given (3/8), (5/8)

(5/8) – (3/8) = (5 – 3)/8

= (2/8)

= (1/4)

(ii) Given (-7/9), (4/9)

(4/9) – (-7/9) = (4/9) + (7/9)

= (4 + 7)/9

= (11/9)

(iii) Given (-2/11), (-9/11)

(-9/11) – (-2/11) = (-9/11) + (2/11)

= (-9 + 2)/ 11

= (-7/11)

(iv) Given (11/13), (-4/13)

(-4/13) – (11/13) = (-4 – 11)/13

= (-15/13)

2. Evaluate each of the following:

(i) (2/3) – (3/5)

(ii) (-4/7) – (2/-3)

(iii) (4/7) – (-5/-7)

(iv) -2 – (5/9)

Solution:

(i) Given (2/3) – (3/5)

The LCM of 3 and 5 is 15

Consider (2/3) = (2/3) × (5/5) = (10/15)

Now again (3/5) = (3/5) × (3/3) = (9/15)

(2/3) – (3/5) = (10/15) – (9/15)

= (1/15)

(ii) Given (-4/7) – (2/-3)

The LCM of 7 and 3 is 21

Consider (-4/7) = (-4/7) × (3/3) = (-12/21)

Again (2/-3) = (-2/3) × (7/7) = (-14/21)

(-4/7) – (2/-3) = (-12/21) – (-14/21)

= (-12 + 14)/21

Aakash Institute

= (2/21)

(iii) Given (4/7) – (-5/-7)

(4/7) – (5/7) = (4 -5)/7

= (-1/7)

(iv) Given -2 – (5/9)

Consider (-2/1) = (-2/1) × (9/9) = (-18/9)

-2 – (5/9) = (-18/9) – (5/9)

= (-18 -5)/9

= (-23/9)

3. The sum of the two numbers is (5/9). If one of the numbers is (1/3), find the other.

Solution:

Given sum of two numbers is (5/9)

And one them is (1/3)

Let the unknown number be x

x + (1/3) = (5/9)

x = (5/9) – (1/3)

LCM of 3 and 9 is 9

Consider (1/3) = (1/3) × (3/3) = (3/9)

On substituting we get

x = (5/9) – (3/9)

x = (5 – 3)/9

x = (2/9)

4. The sum of two numbers is (-1/3). If one of the numbers is (-12/3), find the other.

Solution:

Given sum of two numbers = (-1/3)

One of them is (-12/3)

Let the required number be x

x + (-12/3) = (-1/3)

x = (-1/3) – (-12/3)

x = (-1/3) + (12/3)

x = (-1 + 12)/3

x = (11/3)

5. The sum of two numbers is (– 4/3). If one of the numbers is -5, find the other.

Aakash Institute

Solution:

Given sum of two numbers = (-4/3)

One of them is -5

Let the required number be x

x + (-5) = (-4/3)

LCM of 1 and 3 is 3

(-5/1) = (-5/1) × (3/3) = (-15/3)

On substituting

x + (-15/3) = (-4/3)

x = (-4/3) – (-15/3)

x = (-4/3) + (15/3)

x = (-4 + 15)/3

x = (11/3)

6. The sum of two rational numbers is – 8. If one of the numbers is (-15/7), find the other.

Solution:

Given sum of two numbers is -8

One of them is (-15/7)

Let the required number be x

x + (-15/7) = -8

The LCM of 7 and 1 is 7

Consider (-8/1) = (-8/1) × (7/7) = (-56/7)

On substituting

x + (-15/7) = (-56/7)

x = (-56/7) – (-15/7)

x = (-56/7) + (15/7)

x = (-56 + 15)/7

x = (-41/7)

7. What should be added to (-7/8) so as to get (5/9)?

Solution:

Given (-7/8)

Let the required number be x

x + (-7/8) = (5/9)

The LCM of 8 and 9 is 72

Aakash Institute

x = (5/9) – (-7/8)

x = (5/9) + (7/8)

Consider (5/9) = (5/9) × (8/8) = (40/72)

Again (7/8) = (7/8) × (9/8) = (63/72)

On substituting

x = (40/72) + (63/72)

x = (40 + 63)/72

x = (103/72)

8. What number should be added to (-5/11) so as to get (26/33)?

Solution:

Given (-5/11)

Let the required number be x

x + (-5/11) = (26/33)

x = (26/33) – (-5/11)

x = (26/33) + (5/11)

Consider (5/11) = (5/11) × (3/3) = (15/33)

On substituting

x = (26/33) + (15/33)

x = (41/33)

9. What number should be added to (-5/7) to get (-2/3)?

Solution:

Given (-5/7)

Let the required number be x

x + (-5/7) = (-2/3)

x = (-2/3) – (-5/7)

x = (-2/3) + (5/7)

LCM of 3 and 7 is 21

Consider (-2/3) = (-2/3) × (7/7) = (-14/21)

Again (5/7) = (5/7) × (3/3) = (15/21)

On substituting

x = (-14/21) + (15/21)

x = (-14 + 15)/21

x = (1/21)

Aakash Institute

10. What number should be subtracted from (-5/3) to get (5/6)?

Solution:

Given (-5/3)

Let the required number be x

(-5/3) – x = (5/6)

– x = (5/6) – (-5/3)

– x = (5/6) + (5/3)

Consider (5/3) = (5/3) × (2/2) = (10/6)

On substituting

– x = (5/6) + (10/6)

– x = (15/6)

x = (-15/6)

11. What number should be subtracted from (3/7) to get (5/4)?

Solution:

Given (3/7)

Let the required number be x

(3/7) – x = (5/4)

– x = (5/4) – (3/7)

The LCM of 4 and 7 is 28

Consider (5/4) = (5/4) × (7/7) = (35/28)

Again (3/7) = (3/7) × (4/4) = (12/28)

On substituting

-x = (35/28) – (12/28)

– x = (35 -12)/28

– x = (23/28)

x = (-23/28)

12. What should be added to ((2/3) + (3/5)) to get (-2/15)?

Solution:

Given ((2/3) + (3/5))

Let the required number be x

((2/3) + (3/5)) + x = (-2/15)

Consider (2/3) = (2/3) × (5/5) = (10/15)

Again (3/5) = (3/5) × (3/3) = (9/15)

Aakash Institute

On substituting

((10/15) + (9/15)) + x = (-2/15)

x = (-2/15) – ((10/15) + (9/15))

x = (-2/15) – (19/15)

x = (-2 -19)/15

x = (-21/15)

x = (- 7/5)

13. What should be added to ((1/2) + (1/3) + (1/5)) to get 3?

Solution:

Given ((1/2) + (1/3) + (1/5))

Let the required number be x

((1/2) + (1/3) + (1/5)) + x = 3

x = 3 – ((1/2) + (1/3) + (1/5))

LCM of 2, 3 and 5 is 30

Consider (1/2) = (1/2) × (15/15) = (15/30)

(1/3) = (1/3) × (10/10) = (10/30)

(1/5) = (1/5) × (6/6) = (6/30)

On substituting

x = 3 – ((15/30) + (10/30) + (6/30))

x = 3 – (31/30)

(3/1) = (3/1) × (30/30) = (90/30)

x = (90/30) – (31/30)

x = (90 – 31)/30

x = (59/30)

14. What should be subtracted from ((3/4) – (2/3)) to get (-1/6)?

Solution:

Given ((3/4) – (2/3))

Let the required number be x

((3/4) – (2/3)) – x = (-1/6)

– x = (-1/6) – ((3/4) – (2/3))

Consider (3/4) = (3/4) × (3/3) = (9/12)

(2/3) = (2/3) × (4/4) = (8/12)

On substituting

Aakash Institute

– x = (-1/6) – ((9/12) – ((8/12))

– x = (-1/6) – (1/12)

(1/6) = (1/6) × (2/2) = (2/12)

– x = (-2/12) – (1/12)

– x = (-2 – 1)/12

– x = (-3/12)

x = (3/12)

x = (1/4)

15. Simplify:

(i) (-3/2) + (5/4) – (7/4)

(ii) (5/3) – (7/6) + (-2/3)

(iii) (5/4) – (7/6) – (-2/3)

(iv) (-2/5) – (-3/10) – (-4/7)

Solution:

(i) Given (-3/2) + (5/4) – (7/4)

Consider (-3/2) = (-3/2) × (2/2) = (-6/4)

On substituting

(-3/2) + (5/4) – (7/4) = (-6/4) + (5/4) – (7/4)

= (-6 + 5 – 7)/4

= (-13 + 5)/4

= (-8/4)

= -2

(ii) Given (5/3) – (7/6) + (-2/3)

Consider (5/3) = (5/3) × (2/2) = (10/6)

(-2/3) = (-2/3) × (2/2) = (-4/6)

(5/3) – (7/6) + (-2/3) = (10/6) – (7/6) – (4/6)

= (10 – 7 – 4)/6

= (10 – 11)/6

= (-1/6)

(iii) Given (5/4) – (7/6) – (-2/3)

The LCM of 4, 6 and 3 is 12

Consider (5/4) = (5/4) × (3/3) = (15/12)

(7/6) = (7/6) × (2/2) = (14/12)

Aakash Institute

(-2/3) = (-2/3) × (4/4) = (-8/12)

(5/4) – (7/6) – (-2/3) = (15/12) – (14/12) + (8/12)

= (15 – 14 + 8)/12

= (9/12)

= (3/4)

(iv) Given (-2/5) – (-3/10) – (-4/7)

The LCM of 5, 10 and 7 is 70

Consider (-2/5) = (-2/5) × (14/14) = (-28/70)

(-3/10) = (-3/10) × (7/7) = (-21/70)

(-4/7) = (-4/7) × (10/10) = (-40/70)

On substituting

(-2/5) – (-3/10) – (-4/7) = (-28/70) + (21/70) + (40/70)

= (-28 + 21 + 40)/70

= (33/70)

16. Fill in the blanks:

(i) (-4/13) – (-3/26) = …..

(ii) (-9/14) + ….. = -1

(iii) (-7/9) + ….. = 3

(iv) ….. + (15/23) = 4

Solution:

(i) (-5/26)

Explanation:

Consider (-4/13) – (-3/26)

(-4/13) = (-4/13) × (2/2) = (-8/26)

(-4/13) – (-3/26) = (-8/26) – (-3/26)

= (-5/26)

(ii) (-5/14)

Explanation:

Given (-9/14) + ….. = -1

(-9/14) + 1 = ….

(-9/14) + (14/14) = (5/14)

(-9/14) + (-5/14) = -1

(iii) (34/9)

Aakash Institute

Explanation:

Given (-7/9) + ….. = 3

(-7/9) + x = 3

x = 3 + (7/9)

(3/1) = (3/1) × (9/9) = (27/9)

x = (27/9) + (7/9) = (34/9)

(iv) (77/23)

Explanation:

Given ….. + (15/23) = 4

x + (15/23) = 4

x = 4 – (15/23)

(4/1) = (4/1) × (23/23) = (92/23)

x = (92/23) – (15/23)

= (77/23)

Exercise 5.3 Page No: 5.10

1. Multiply:

(i) (7/11) by (5/4)

(ii) (5/7) by (-3/4)

(iii) (-2/9) by (5/11)

(iv) (-3/13) by (-5/-4)

Solution:

(i) Given (7/11) by (5/4)

(7/11) × (5/4) = (35/44)

(ii) Given (5/7) by (-3/4)

(5/7) × (-3/4) = (-15/28)

(iii) Given (-2/9) by (5/11)

(-2/9) × (5/11) = (-10/99)

(iv) Given (-3/13) by (-5/-4)

(-3/13) × (-5/-4) = (-15/68)

2. Multiply:

(i) (-5/17) by (51/-60)

Aakash Institute

(ii) (-6/11) by (-55/36)

(iii) (-8/25) by (-5/16)

(iv) (6/7) by (-49/36)

Solution:

(i) Given (-5/17) by (51/-60)

(-5/17) × (51/-60) = (-225/- 1020)

= (225/1020)

= (1/4)

(ii) Given (-6/11) by (-55/36)

(-6/11) × (-55/36) = (330/ 396)

= (5/6)

(iii) Given (-8/25) by (-5/16)

(-8/25) × (-5/16) = (40/400)

= (1/10)

(iv) Given (6/7) by (-49/36)

(6/7) × (-49/36) = (-294/252)

= (-7/6)

3. Simplify each of the following and express the result as a rational number in standard form:

(i) (-16/21) × (14/5)

(ii) (7/6) × (-3/28)

(iii) (-19/36) × 16

(iv) (-13/9) × (27/-26)

Solution:

(i) Given (-16/21) × (14/5)

(-16/21) × (14/5) = (-224/105)

= (-32/15)

(ii) Given (7/6) × (-3/28)

(7/6) × (-3/28) = (-21/168)

= (-1/8)

(iii) Given (-19/36) × 16

(-19/36) × 16 = (-304/36)

= (-76/9)

Aakash Institute

(iv) Given (-13/9) × (27/-26)

(-13/9) × (27/-26) = (-351/234)

= (3/2)

4. Simplify:

(i) (-5 × (2/15)) – (-6 × (2/9))

(ii) ((-9/4) × (5/3)) + ((13/2) × (5/6))

Solution:

(i) Given (-5 × (2/15)) – (-6 × (2/9))

(-5 × (2/15)) – (-6 × (2/9)) = (-10/15) – (-12/9)

= (-2/3) + (12/9)

= (-6/9) + (12/9)

= (6/9)

= (2/3)

(ii) Given ((-9/4) × (5/3)) + ((13/2) × (5/6))

((-9/4) × (5/3)) + ((13/2) × (5/6)) = ((-3/4) × 5) + ((13/2) × (5/6))

= (-15/4) + (65/12)

= (-15/4) × (3/3) + (65/12)

= (-45/12) + (65/12)

= (65 – 45)/12

= (20/12)

= (5/3)

5. Simplify:

(i) ((13/9) × (-15/2)) + ((7/3) × (8/5)) + ((3/5) × (1/2))

(ii) ((3/11) × (5/6)) – ((9/12) × ((4/3)) + ((5/13) × (6/15))

Solution:

(i) Given ((13/9) × (-15/2)) + ((7/3) × (8/5)) + ((3/5) × (1/2))

((13/9) × (-15/2)) + ((7/3) × (8/5)) + ((3/5) × (1/2)) = (-195/18) + (56/15) + (3/10)

= (-65/6) + (56/15) + (3/10)

= (-65/6) × (5/5) + (56/15) × (2/2) + (3/10) × (3/3).

= (-325/30) + (112/30) + (9/30)

= (-325 + 112 + 9)/30

= (-204/30)

= (-34/5)

Aakash Institute

(ii) Given ((3/11) × (5/6)) – ((9/12) × ((4/3)) + ((5/13) × (6/15))

((3/11) × (5/6)) – ((9/12) × ((4/3)) + ((5/13) × (6/15)) = (15/66) – (36/36) + (30/195)

= (5/22) – (12/12) + (1/11)

= (5/22) – 1 + (2/13)

= (5/22) × (13/13) + (1/1) × (286/286) + (2/13) × (22/22)

= (65/286) – (286/286) + (44/286)

= (-177/286)

Exercise 5.4 Page No: 5.13

1. Divide:

(i) 1 by (1/2)

(ii) 5 by (-5/7)

(iii) (-3/4) by (9/-16)

(iv) (-7/8) by (-21/16)

(v) (7/-4) by (63/64)

(vi) 0 by (-7/5)

(vii) (-3/4) by -6

(viii) (2/3) by (-7/12)

Solution:

(i) Given 1 by (1/2)

1 ÷ (1/2) = 1 × 2 = 2

(ii) Given 5 by (-5/7)

5 ÷ (-5/7) = 5 × (-7/5)

= -7

(iii) Given (-3/4) by (9/-16)

(-3/4) ÷ (9/-16) = (-3/4) × (-16/9)

= (-4/-3)

= (4/3)

(iv) Given (-7/8) by (-21/16)

(-7/8) ÷ (-21/16) = (-7/8) × (16/-21)

= (-2/-3)

= (2/3)

Aakash Institute

(v) Given (7/-4) by (63/64)

(7/-4) ÷ (63/64) = (7/-4) × (64/63)

= (-16/9)

(vi) Given 0 by (-7/5)

0 ÷ (-7/5) = 0 × (5/7)

= 0

(vii) Given (-3/4) by -6

(-3/4) ÷ -6 = (-3/4) × (1/-6)

= (-1/-8)

= (1/8)

(viii) Given (2/3) by (-7/12)

(2/3) ÷ (-7/12) = (2/3) × (12/-7)

= (8/-7)

2. Find the value and express as a rational number in standard form:

(i) (2/5) ÷ (26/15)

(ii) (10/3) ÷ (-35/12)

(iii) -6 ÷ (-8/17)

(iv) (40/98) ÷ (-20)

Solution:

(i) Given (2/5) ÷ (26/15)

(2/5) ÷ (26/15) = (2/5) × (15/26)

= (3/13)

(ii) Given (10/3) ÷ (-35/12)

(10/3) ÷ (-35/12) = (10/3) × (12/-35)

= (-40/35)

= (- 8/7)

(iii) Given -6 ÷ (-8/17)

-6 ÷ (-8/17) = -6 × (17/-8)

= (102/8)

= (51/4)

(iv) Given (40/98) ÷ -20

(40/98) ÷ -20 = (40/98) × (1/-20)

= (-2/98)

Aakash Institute

= (-1/49)

3. The product of two rational numbers is 15. If one of the numbers is -10, find the other.

Solution:

Let required number be x

x × – 10 = 15

x = (15/-10)

x = (3/-2)

x = (-3/2)

Hence the number is (-3/2)

4. The product of two rational numbers is (- 8/9). If one of the numbers is (- 4/15), find the other.

Solution:

Given product of two numbers = (-8/9)

One of them is (-4/15)

Let the required number be x

x × (-4/15) = (-8/9)

x = (-8/9) ÷ (-4/15)

x = (-8/9) × (15/-4)

x = (-120/-36)

x = (10/3)

5. By what number should we multiply (-1/6) so that the product may be (-23/9)?

Solution:

Given product = (-23/9)

One number is (-1/6)

Let the required number be x

x × (-1/6) = (-23/9)

x = (-23/9) ÷ (-1/6)

x = (-23/9) × (-6/1)

x = (138/9)

x = (46/3)

6. By what number should we multiply (-15/28) so that the product may be (-5/7)?

Solution:

Given product = (-5/7)

Aakash Institute

One number is (-15/28)

Let the required number be x

x × (-15/28) = (-5/7)

x = (-5/7) ÷ (-15/28)

x = (-5/7) × (28/-15)

x = (-4/-3)

x = (4/3)

7. By what number should we multiply (-8/13) so that the product may be 24?

Solution:

Given product = 24

One of the number is = (-8/13)

Let the required number be x

x × (-8/13) = 24

x = 24 ÷ (-8/13)

x = 24 × (13/-8)

x = -39

8. By what number should (-3/4) be multiplied in order to produce (-2/3)?

Solution:

Given product = (-2/3)

One of the number is = (-3/4)

Let the required number be x

x × (-3/4) = (-2/3)

x = (-2/3) ÷ (-3/4)

x = (-2/3) × (4/-3)

x = (-8/-9)

x = (8/9)

9. Find (x + y) ÷ (x – y), if

(i) x = (2/3), y = (3/2)

(ii) x = (2/5), y = (1/2)

(iii) x = (5/4), y = (-1/3)

Solution:

(i) Given x = (2/3), y = (3/2)

(x + y) ÷ (x – y) = ((2/3) + (3/2)) ÷ ((2/3) – (3/2))

Aakash Institute

= (4 + 9)/6 ÷ (4 – 9)/6

= (4 + 9)/6 × (6/ (4 – 9)

= (4 + 9)/ (4 -9)

= (13/-5)

(ii) Given x = (2/5), y = (1/2)

(x + y) ÷ (x – y) = ((2/5) + (1/2)) ÷ ((2/5) – (1/2))

= (4 + 5)/10 ÷ (4 -5)/10

= (4 + 5)/10 × (10/ (4 – 5)

= (4 + 5)/ (4 -5)

= (9/-1)

(iii) Given x = (5/4), y = (-1/3)

(x + y) ÷ (x – y) = ((5/4) + (-1/3)) ÷ ((5/4) – (-1/3))

= (15 – 4)/12 ÷ (15 + 4)/12

= (15 – 4)/12 × (12/ (15 + 4)

= (15 – 4)/ (15 + 4)

= (11/19)

10. The cost of $7\frac{2}{3}$ meters of rope is Rs. $12\frac{3}{4}$. Find its cost per meter.
Solution:

Given cost of $7\frac{2}{3}$ = (23/3) meters of rope is Rs. $12\frac{3}{4}$ = (51/4)
Cost per meter = (51/4) ÷ (23/3)

= (51/4) × (3/23)

= (153/92)

= Rs $1\frac{61}{92}$

11. The cost of $2\frac{1}{3}$ meters of cloth is Rs.$75\frac{1}{4}$. Find the cost of cloth per meter.
Solution:

Given cost of $2\frac{1}{3}$ metres of rope = Rs. $75\frac{1}{4}$
Cost of cloth per meter = $75\frac{1}{4} \div 2\frac{1}{3}$
= (301/4) ÷ (7/3)

= (301/4) × (3/7)

= (129/4)

= Rs $32\frac{1}{4}$

12. By what number should (-33/16) be divided to get (-11/4)?

Solution:

Let the required number be x

(-33/16) ÷ x = (-11/4)

Aakash Institute

x = (-33/16) ÷ (-11/4)

x = (-33/16) × (4/-11)

x = (3/4)

13. Divide the sum of (-13/5) and (12/7) by the product of (-31/7) and (-1/2)

Solution:

Given

((-13/5) + (12/7)) ÷ (-31/7) x (-1/2)

= ((-13/5) × (7/7) + (12/7) × (5/5)) ÷ (31/14)

= ((-91/35) + (60/35)) ÷ (31/14)

= (-31/35) ÷ (31/14)

= (-31/35) × (14/31)

= (-14/35)

= (-2/5)

14. Divide the sum of (65/12) and (8/3) by their difference.

Solution:

((65/12) + (8/3)) ÷ ((65/12) – (8/3))

= ((65/12) + (32/12)) ÷ ((65/12) – (32/12))

= (65 + 32)/12 ÷ (65 -32)/12

= (65 + 32)/12 × (12/ (65 – 32)

= (65 + 32)/ (65 – 32)

= (97/33)

15. If 24 trousers of equal size can be prepared in 54 metres of cloth, what length of cloth is required for each trouser?

Solution:

Given material required for 24 trousers = 54m

Cloth required for 1 trouser = (54/24)

= (9/4) meters

Exercise 5.5 Page No: 5.16

1. Find six rational numbers between (-4/8) and (3/8)

Solution:

We know that between -4 and -8, below mentioned numbers will lie

Aakash Institute

-3, -2, -1, 0, 1, 2.

According to definition of rational numbers are in the form of (p/q) where q not equal to zero.

Therefore six rational numbers between (-4/8) and (3/8) are

(-3/8), (-2/8), (-1/8), (0/8), (1/8), (2/8), (3/8)

2. Find 10 rational numbers between (7/13) and (- 4/13)

Solution:

We know that between 7 and -4, below mentioned numbers will lie

-3, -2, -1, 0, 1, 2, 3, 4, 5, 6.

According to definition of rational numbers are in the form of (p/q) where q not equal to zero.

Therefore six rational numbers between (7/13) and (-4/13) are

(-3/13), (-2/13), (-1/13), (0/13), (1/13), (2/13), (3/13), (4/13), (5/13), (6/13)

3. State true or false:

(i) Between any two distinct integers there is always an integer.

(ii) Between any two distinct rational numbers there is always a rational number.

(iii) Between any two distinct rational numbers there are infinitely many rational numbers.

Solution:

(i) False

Explanation:

Between any two distinct integers not necessary to be one integer.

(ii) True

Explanation:

According to the properties of rational numbers between any two distinct rational numbers there is always a rational number.

(iii) True

Explanation:

According to the properties of rational numbers between any two distinct rational numbers there are infinitely many rational numbers.

Aakash Institute