RD SHARMA

Solutions

Class 7 Maths

Chapter 4

Ex 4.2

Q 1 . Express each of the following as rational number with positive denominator :

(i) . $\frac{-15}{-28}$

(ii) . $\frac{6}{-9}$

(iii) . $\frac{-28}{-11}$

(iv) . $\frac{19}{-7}$

SOLUTION :

Rational number with positive denominators :

(i) Multiplying the number by -1, we get : -15-28 = -15 x -1-28 x-1 = 1528

(ii) Multiplying the number by -1, we get : 6-9 = 6x-1-9x-1 = -69

(iii) Multiplying the number by -1, we get : -28-11 = -28 x-1-11 x-1=2811

(iv) Multiplying the number by -1, we get : 19-7 = 19 x-1-7 x-1 = -197

Q 2 . Express $\frac{3}{5}$ as a rational number with numerator :

(i) 6

(ii) -15

(iii) 21

(iv) -27

SOLUTION :

Rational number with numerator :

(i) 6 is :

$\frac{3\times2}{5\times2} = \frac{6}{10}$ (multiplying numerator and denominator by 2)

(ii) -15 is :

$\frac{3\times-5}{5\times-5} = \frac{-15}{-25}$ (multiplying numerator and denominator by -5)

(iii) 21 is :

$\frac{3\times7}{5\times7} = \frac{21}{35}$ (multiplying numerator and denominator by 7)

(iv) -27 is :

$\frac{3\times-9}{5\times-9} = \frac{-27}{-45}$ (multiplying numerator and denominator by -9)

Q 3 . Express $\frac{5}{7}$ as a rational number with denominator :

(i) -14

(ii) 70

(iii) -28

(iv) -84

SOLUTION :

$\frac{5}{7}$ as a rational number with denominator :

(1) -14 is :

$\frac{5\times-2}{7\times-2} = \frac{-20}{-14}$ (Multiplying numerator and denominator by -2)

(ii) 70 is :

$\frac{5\times10}{7\times10} = \frac{50}{70}$ (Multiplying numerator and denominator by 10)

(iii) -28 is :

$\frac{5\times-4}{7\times-4} = \frac{-20}{-28}$ (Multiplying numerator and denominator by -4)

(iv) -84 is :

$\frac{5\times-12}{7\times-12} = \frac{-60}{-84}$ (Multiplying numerator and denominator by -12)

Q 4 . Express $\frac{3}{4}$ as a rational number with denominator :

(i) 20

(ii) 36

(iii) 44

(iv) -80

SOLUTION :

$\frac{3}{4}$ as rational number with denominator:

(i) 20 is :

$\frac{3\times5}{4\times5} = \frac{15}{20}$ (multiplying numerator and denominator by 5)

(ii) 36 is :

$\frac{3\times9}{4\times9} = \frac{27}{36}$ (multiplying numerator and denominator by 9)

(iii) 44 is :

$\frac{3\times11}{4\times11} = \frac{33}{44}$ (multiplying numerator and denominator by 11)

(iv) -80 is :

$\frac{3\times-20}{4\times-20} = \frac{-60}{-80}$ (multiplying numerator and denominator by -20)

Q 5 . Express $\frac{2}{5}$ as a rational number with numerator :

(i) -56

(ii) 154

(iii) -750

(iv) -80

SOLUTION :

2/5 as a rational number with numerator :

(i) . -56 is :

$\frac{2\times-28}{5\times-28} = \frac{-56}{-140}$ (multiplying numerator and denominator by -28)

(ii) 154 is :

$\frac{2\times77}{5\times77} = \frac{154}{385}$ (multiplying numerator and denominator by 77)

(iii) -750 is :

$\frac{2\times-375}{5\times-375} = \frac{-750}{-1875}$ (multiplying numerator and denominator by -375)

(iv) 500 is :

$\frac{2\times250}{5\times250} = \frac{500}{1250}$ (multiplying numerator and denominator by 250)

Q 6 . Express $\frac{-192}{108}$ as a rational number with numerator :

(i) 64

(ii) -16

(iii) 32

(iv) -48

SOLUTION :

Rational number with numerator :

(i) 64 as numerator :

-192/-3 & 108/-3 =64/-36 (Dividing the numerator and denomintor by -3)

(ii) -16 as numerator :

-192/12 & 108/12 = -16/9 (Dividing the numerator and denomintor by 12)

(iii) 32 as numerator :

-192/-6 & 108/-6 = 32/-18 (Dividing the numerator and denomintor by -6)

(iv) -48 as numerator :

-192/4 & 108/4 = -48/27 (Dividing the numerator and denomintor by 4)

Q 7 .Express $\frac{168}{-294}$ as a rational number with denominator :

(i) 14

(ii) -7

(iii) -49

(iv) 1470

SOLUTION :

Rational number with denominator:

(i) 14 as denominator :

168/-21 & -294/-21 = -8/14 (Dividing the numerator and denomintor by -21)

(ii) -7 as denominator :

168/42 & -294/42 = 4/-7 (Dividing the numerator and denomintor by 42)

(iii) -49 as denominator :

168/6 & -294/6 = 28/-49 (Dividing the numerator and denomintor by 6)

(iv) 1470 as denominator :

$\frac{168\times-5}{-294\times-5}$ = -840/1470 (Multiplying the numerator and denomintor by -5)

Q 8 . Write $\frac{-14}{42}$ in a form so that numerator is equal to :

(i) -2

(ii) 7

(iii) 42

(iv) -70

SOLUTION :

Rational number with numerator :

(i) -2 is :

-14/7 & 42/7 = -26 (Dividing numerator and denominator by 7)

(ii) 7 is :

-14/-2 & 42/-2 = 7/-21 (Dividing numerator and denominator by -2)

(iii) 42 is :

-14x-3 & 42x-3 = 42/-126 (Multiplying numerator and denominator by -3)

(iv) -70 is :

-14×5 & 42×5 = -70/210 (Multiplying numerator and denominator by 5)

Q 9 . Select those rational numbers which can be written as a rational number with numerator 6 :

$\frac{1}{22}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{-5}$, $\frac{5}{6}$, $\frac{-6}{7}$, $\frac{-7}{8}$

SOLUTION :

Given rational numbers that can be written as a rational number with numerator 6 are :

1/22 (On multiplying by 6) = 6/132 , 2/3 (On multiplying by 3) = 6/9 , 3/4 (On multiplying by 2) = 6/8 , -6/7 (On multiplying by -1) = 6/-7

Q 10 . Select those rational numbers which can be written as a rational number with denominator 4 :

$\frac{7}{8}, \frac{64}{16}, \frac{36}{-12}, \frac{-16}{17}, \frac{5}{-4}, \frac{-140}{28}$.

SOLUTION :

Given rational numbers that can be written as a rational number with denominator 4 are :

7/8 (On dividing by 2) = 3.5/4 ,

64/16 (On dividing by 4) = 16/4 ,

36/-12(On dividing by 3) = 12/-4 = -12/4 ,

16/17 can't be expressed with a denominator 4.

5/- 4(On multiplying by -1) =-5/4

140/28(On dividing by 7) =20/4

Q 11 . In each of the following , find an equivalent form of the rational number having common denominator :

(i) $\frac{3}{4}$ ***and*** $\frac{5}{12}$

(ii) $\frac{2}{3}$, $\frac{7}{6}$ ***and*** $\frac{11}{12}$

(iii) $\frac{5}{7}$, $\frac{3}{8}$, $\frac{9}{14}$ ***and*** $\frac{20}{21}$

SOLUTION :

Equivalent forms of the rational number having common denominator are :

(i) 3/4 = (3×3)/(4×3) = 9/12 and 512.

(ii) 2/3 = (2×4)/(3×4) = 8/12 and 7/6 = (7×2)/(6×2) = 14/12 and 11/12

Forms are 8/12 , 14/12 and 11/12

(iii) 5/7 = (5×24)/(7×24) = 120/168 , 3/8 = (3×21)/(8×21) = 63/168 , 9/14 = (9×12)/(14×12) = 108/168 and 20/21 = (20×8)/(21×8) = 160/168

Forms are 120/168 , 63/168 , 108/168 and 160/168.