

RD Sharma Solutions Class 7 Maths Chapter 4 Rational Numbers

EXERCISE 4.5

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Which of the following rational numbers are equal?
(i) (-9/12) and (8/-12)
(ii) (-16/20) and (20/-25)
(iii) (-7/21) and (3/-9)
(iv) (-8/-14) and (13/21)

Solution:

(i) Given (-9/12) and (8/-12)

The standard form of (-9/12) is (-3/4) [on diving the numerator and denominator of given number by their HCF i.e. by 3]

The standard form of (8/-12) = (-2/3) [on diving the numerator and denominator of given number by their HCF i.e. by 4]

Since, the standard forms of two rational numbers are not same. Hence, they are not equal.

(ii) Given (-16/20) and (20/-25)

Multiplying numerator and denominator of (-16/20) by the denominator of (20/-25) i.e. -25.

 $(-16/20) \times (-25/-25) = (400/-500)$

Now multiply the numerator and denominator of (20/-25) by the denominator of (-16/20) i.e. 20

 $(20/-25) \times (20/20) = (400/-500)$

Clearly, the numerators of the above obtained rational numbers are equal. Hence, the given rational numbers are equal

(iii) Given (-7/21) and (3/-9)

Multiplying numerator and denominator of (-7/21) by the denominator of (3/-9) i.e. -9.

 $(-7/21) \times (-9/-9) = (63/-189)$

Now multiply the numerator and denominator of (3/-9) by the denominator of (-7/21) i.e. 21

 $(3/-9) \times (21/21) = (63/-189)$

Clearly, the numerators of the above obtained rational numbers are equal. Hence, the given rational numbers are equal

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(iv) Given (-8/-14) and (13/21)

Multiplying numerator and denominator of (-8/-14) by the denominator of (13/21) i.e. 21

(-8/-14) × (21/21) = (-168/-294)

Now multiply the numerator and denominator of (13/21) by the denominator of (-8/-14) i.e. -14

 $(13/21) \times (-14/-14) = (-182/-294)$

Clearly, the numerators of the above obtained rational numbers are not equal. Hence, the given rational numbers are also not equal

2. In each of the following pairs represent a pair of equivalent rational numbers, find the values of x.

(i) (2/3) and (5/x) (ii) (-3/7) and (x/4) (iii) (3/5) and (x/-25) (iv) (13/6) and (-65/x)

Solution:

(i) Given (2/3) and (5/x) Also given that they are equivalent rational number so (2/3) = (5/x)x = $(5 \times 3)/2$ x = (15/2)

(ii) Given (-3/7) and (x/4) Also given that they are equivalent rational number so (-3/7) = (x/4) $x = (-3 \times 4)/7$ x = (-12/7)

(iii) Given (3/5) and (x/-25) Also given that they are equivalent rational number so (3/5) = (x/-25) x = $(3 \times -25)/5$ x = (-75)/5x = -15

(iv) Given (13/6) and (-65/x) Also given that they are equivalent rational number so (13/6) = (-65/x) x = 6/13 x (-65)

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x = 6 x (-5) x = -30

3. In each of the following, fill in the blanks so as to make the statement true:

(i) A number which can be expressed in the form p/q, where p and q are integers and q is not equal to zero, is called a

(ii) If the integers p and q have no common divisor other than 1 and q is positive, then the rational number (p/q) is said to be in the

(iii) Two rational numbers are said to be equal, if they have the same form

(iv) If m is a common divisor of a and b, then $(a/b) = (a \div m)/....$

(v) If p and q are positive Integers, then p/q is a rational number and (p/-q) is a rational number.

(vi) The standard form of -1 is ...

(vii) If (p/q) is a rational number, then q cannot be

(viii) Two rational numbers with different numerators are equal, if their numerators are in the same as their denominators.

Solution:

- (i) Rational number
- (ii) Standard form
- (iii) Standard
- (iv) b ÷ m
- (v) Positive, negative
- (vi) (-1/1)
- (vii) Zero
- (viii) Ratio

4. In each of the following state if the statement is true (T) or false (F):

(i) The quotient of two integers is always an integer.

- (ii) Every integer is a rational number.
- (iii) Every rational number is an integer.
- (iv) Every traction is a rational number.
- (v) Every rational number is a fraction.
- (vi) If a/b is a rational number and m any integer, then $(a/b) = (a \times m)/(b \times m)$
- (vii) Two rational numbers with different numerators cannot be equal.
- (viii) 8 can be written as a rational number with any integer as denominator.
- (ix) 8 can be written as a rational number with any integer as numerator.



(x) (2/3) is equal to (4/6).

Solution:

(i) False

Explanation:

The quotient of two integers is not necessary to be an integer

(ii) True

Explanation:

Every integer can be expressed in the form of p/q, where q is not zero.

(iii) False

Explanation:

Every rational number is not necessary to be an integer

(iv) True

Explanation:

According to definition of rational number i.e. every integer can be expressed in the form of p/q, where q is not zero.

(v) False

Explanation:

It is not necessary that every rational number is a fraction.

(vi) True

Explanation:

If a/b is a rational number and m any integer, then $(a/b) = (a \times m)/(b \times m)$ is one of the rule of rational numbers

(vii) False



Explanation:

They can be equal, when simplified further.

(viii) False

Explanation:

8 can be written as a rational number but we can't write 8 with any integer as denominator.

(ix) False

Explanation:

8 can be written as a rational number but we can't with any integer as numerator.

(x) True

Explanation:

When convert it into standard form they are equal

