RD Sharma Solutions

Class 7

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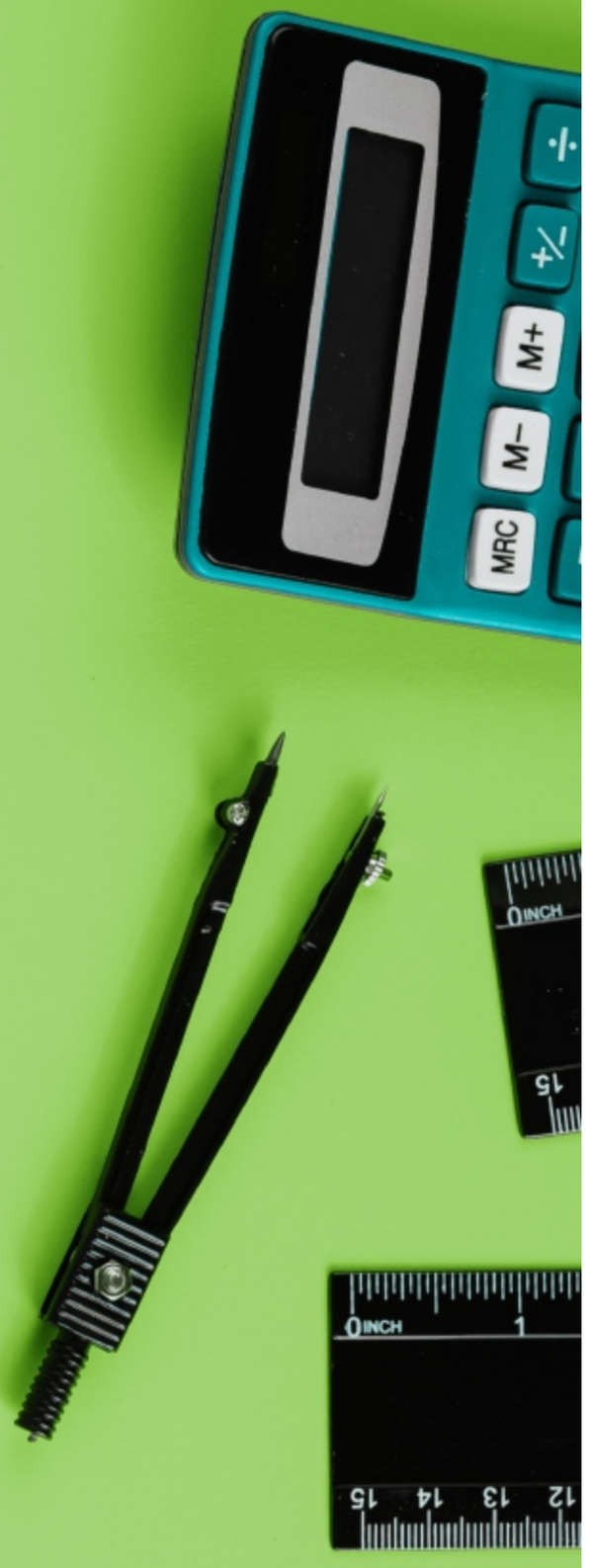

Exercise 4.5

Q.1 Which of the following rational numbers are equal.?

(i) $\frac{-9}{12}$ and $\frac{+8}{-12}$ (ii) $\frac{-16}{20}$ and $\frac{20}{-25}$

(iii) $\frac{-7}{21}$ and $\frac{3}{-9}$ (iv) $\frac{-8}{-14}$ and $\frac{13}{21}$

Solution: (i) $\frac{-9}{12}$ and $\frac{8}{-12}$

By cross multiplying terms, we get

$$-9 \times -12 \neq 12 \times 8$$

$$108 \neq 96$$

$\therefore$ $\frac{-9}{12}$ and $\frac{8}{-12}$ are not equal.

(ii) $\frac{-16}{20}$ and $\frac{20}{-25}$

By cross multiplying terms, we get

$$-16 \times -25 = 20 \times 20$$

$$\Rightarrow \quad 400 = 400$$

$\therefore$ $\frac{-16}{20}$ and $\frac{20}{-25}$ are equal.

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(iii) $\frac{-7}{21}$ and $\frac{3}{-9}$

By cross multiplying, we get

$-7 \times -9 = 21 \times 3$

$\Rightarrow \quad 63 = 63$

$\therefore \frac{-7}{21}$ and $\frac{3}{-9}$ are equal.

(iv) $\frac{-8}{-14}$ and $\frac{13}{21}$

By cross multiplying, we get

$-8 \times 21 \neq -14 \times 13$

$= -168 \neq -182$

hence $\frac{-8}{-14}$ and $\frac{13}{21}$ are not equal.

Q.2 If each of the following pairs represents a pair of equivalent rational numbers, find the value of x.

(i) $\frac{2}{3}$ and $\frac{5}{x}$ (ii) $\frac{-3}{7}$ and $\frac{x}{4}$ (iii) $\frac{3}{5}$ and $\frac{x}{-25}$

(iv) $\frac{13}{6}$ and $\frac{-65}{x}$

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Solution (i) $\frac{2}{}$ and $\frac{5}{x}$

By Cross Multiplying,

$2 \times x = 5 \times$ $\Rightarrow 2x = 5$

$\Rightarrow x = \frac{15}{2}$

(ii) $-\frac{3}{7}$ and $\frac{x}{4}$

By Cross Multiplying, we get

$7x = -3 \times 4$

$\Rightarrow 7x = -12$

$\Rightarrow x = -12/7$

(iii) $\frac{3}{5}$ and $\frac{x}{-25}$

$\Rightarrow 5 \times x = 3 \times -25$ (By Cross Multiplying, we get)

$\Rightarrow 5x = -75$

$\Rightarrow x = \frac{-75}{5} = -15$

(iv) $\frac{13}{6}$ and $\frac{-65}{x}$

By Cross Multiplying, we get

$13 \times x = -65 \times 6$

$\Rightarrow 13x = -390$

$x = \frac{-390}{13} = -30$

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Q.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 $\frac{p}{q}$, 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 $\frac{p}{q}$ 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

$$\frac{a}{b} = \frac{a \div m}{\ldots}$$

(v) If p and q are positive integers, then $\frac{p}{q}$ is a ..... rational number and $\frac{p}{-q}$ is a ..... rational number

(vi) The standard form $q - 1$ is .....

(vii) If $\frac{p}{q}$ is a rational number, then q can not be .....

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(viii) Two rational number 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) $b \div m$ (v) Positive, negative.

(vi) $\frac{-1}{1}$ (vii) zero (viii) ratio.

Q.4 In each of the following state if the statements 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 fraction is a rational number.

(v) Every rational number is a fraction.

(vi) If $\frac{a}{b}$ is a rational number and m is any integer, then $\frac{a}{b} = \frac{a \times m}{b \times m}$

(vii) Two rational numbers with different numerators can not be equal.

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(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) $\frac{2}{3}$ is equals to $\frac{4}{6}$.

<u>Solution</u>: (i) False (ii) True (iii) False

(iv) True (v) False (vi) True (vii) False

(viii) False (ix) False (x) True.

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