Unit 4 (Fractions & Decimals)

Multiple Choice Questions (MGQs)

Question 1:

The fraction which is not equal to 4/5 is

(a) $\frac{40}{50}$ (b) $\frac{12}{15}$ (c) $\frac{16}{20}$ (d) $\frac{9}{15}$

Solution:

(d) For finding the fraction which is not equal to 4/5, we will find the fraction from the option which is not equivalent to $\frac{4}{5}$.

Now, we know that two fractions $\frac{a}{b}$ and $\frac{c}{d}$ are equivalent, if

$$\frac{a}{b} \times \frac{c}{d} \Rightarrow a \times d = b \times c$$

We have,

(a) $\frac{4}{5} \times \frac{40}{50} \Rightarrow 4 \times 50 = 40 \times 5 \Rightarrow 200 = 200$

(b) $\frac{4}{5} \times \frac{12}{15} \Rightarrow 4 \times 15 = 12 \times 5 \Rightarrow 60 = 60$

(c) $\frac{4}{5} \times \frac{16}{20} \Rightarrow 4 \times 20 = 16 \times 5 \Rightarrow 80 = 80$

(d) $\frac{4}{5} \times \frac{9}{15} \Rightarrow 4 \times 15 = 9 \times 5 \Rightarrow 60 \neq 45$

Clearly, $\frac{9}{15}$ is not equivalent to $\frac{4}{5}$.

Question 2:

The two consecutive integers between which the fraction 5/7 lies are

(a) 5 and 6 (b) 0 and 1

(c) 5 and 7 (d) 6 and 7

Solution:

(b) We know that, if the numerator is less than the denominator, then the value of fraction is less than 1.

Hence, the fraction 5/7 lies between 0 and 1.

Question 3:

When 1/4 is written with denominator as 12, its numerator is

(a) 3 (b) 8 (c) 24 (d) 12

Solution:

(a) Given, fraction = 1/4

In order to make the denominator as 12, we will multiply the denominator by 3 and we will also multiply the numerator by 3, to make it an equivalent fraction.

$$\frac{1}{4}=\frac{1\times 3}{4\times 3}=\frac{3}{12}$$

Hence, when denominator of 1/4 is 12, then its numerator will be 3.

Question 4:

Which of the following is not in the lowest form?

(a) $\frac{7}{5}$ (b) $\frac{15}{20}$ (c) $\frac{13}{33}$ (d) $\frac{27}{28}$

Solution:

(b) We know that, a fraction is in its lowest form, if the HCF of their numerator and denominator is 1. Now,

(a) $\frac{7}{5}$

Since, HCF of 7 and 5 is 1. So, it is in its lowest form.

(b) $\frac{15}{20}$

Since, HCF of 15 and 20 is 5. So, it is not in its lowest form.

(c) $\frac{13}{33}$

Since, HCF of 13 and 33 is 1. So, it is in its lowest form.

(d) $\frac{27}{28}$

Since, HCF of 27 and 28 is 1. So, it is in its lowest form.

Hence, option (b) is not in the lowest form.

Question 5:

If 5/8 = 20/P then the value of p is

Solution:

(c) Given, $\frac{5}{8}=\frac{20}{p}$

We know that, if two fractions $\frac{a}{b}$ and $\frac{c}{d}$ are equivalent.

Then, $a\times d=b\times c$

$\Rightarrow$ $5\times p=8\times 20$

$\Rightarrow$ $p=\frac{8\times 20}{5}$

$\Rightarrow$ $p=\frac{160}{5}=32$

Hence, the value of p is 32.

Question 6: Which of the following is not equal to the others?

(a) $\frac{6}{8}$ (b) $\frac{12}{16}$ (c) $\frac{15}{25}$ (d) $\frac{18}{24}$

Solution:

(c) In order to find which of the given fraction is not equal to others, we will convert each of the given fraction in its lowest form. Now,

(a) $\frac{6}{8}=\frac{6\div2}{8\div2}=\frac{3}{4}$ [∵HCF of 6 and 8 is 2]

(b) $\frac{12}{16}=\frac{12\div4}{16\div4}=\frac{3}{4}$ [∵HCF of 12 and 16 is 4]

(c) $\frac{15}{25}=\frac{15\div5}{25\div5}=\frac{3}{5}$ [∵HCF of 15 and 25 is 5]

(d) $\frac{18}{24}=\frac{18\div6}{24\div6}=\frac{3}{4}$ [∵HCF of 18 and 24 is 6]

Hence, option (c) is not equal to the others.

Question 7:

Which of the following fraction is the greatest?

(a) $\frac{5}{7}$ (b) $\frac{5}{6}$ (c) $\frac{5}{9}$ (d) $\frac{5}{8}$

Solution:

(b) In order to find the greatest fraction among the above given fractions, we will convert all the fractions to an equivalent fraction with denominator equal to the LCM of their denominator.

2	7, 6, 9, 8
2	7, 3, 7, 4
2	7, 3, 9, 2
3	7, 3, 9, 1
3	7, 1, 3, 1
7	7, 1, 1, 1
	1, 1, 1, 1

So, LCM of denominator i.e. LCM of 7, 6, 9 and $8 = 2\times2\times2\times3\times3\times7 = 504$

Now, we convert the given fractions to equivalent fractions with denominator 504

$$\frac{5\times72}{7\times72}=\frac{360}{504},\ \frac{5\times84}{6\times84}=\frac{420}{504};$$

$$\frac{5\times56}{9\times56}=\frac{280}{504},\ \frac{5\times63}{8\times63}=\frac{315}{504}$$

Clearly, $\frac{420}{504}$, i.e. $\frac{5}{6}$ is greatest.

Question 8:

Which of the following fraction is the smallest?

(a) $\frac{7}{8}$ (b) $\frac{9}{8}$ (c) $\frac{3}{8}$ (d) $\frac{5}{8}$

Solution:

(c) Since, for comparing fractions with same denominators, fraction with smaller numerator is

$$\therefore \quad \frac{3}{8}<\frac{5}{8}<\frac{7}{8}<\frac{9}{8}$$

Hence, $\frac{3}{8}$ is the smallest fraction.

Question 9:

Sum of $\frac{4}{17}$ and $\frac{15}{17}$ is

(a) $\frac{19}{17}$ (b) $\frac{11}{17}$ (c) $\frac{19}{34}$ (d) $\frac{2}{17}$

Solution:

(a) Since, fractions with same denominators can be added by simply adding the numerators and writing the common denominator as it is

$$\frac{4}{17}+\frac{15}{17}=\frac{4+15}{17}=\frac{19}{17}$$

Question 10:

On subtracting $\frac{5}{9}$ from $\frac{19}{9}$, the result is

(a) $\frac{24}{9}$ (b) $\frac{14}{9}$ (c) $\frac{14}{18}$ (d) $\frac{14}{0}$

Solution:

(b) Since, fractions with same denominators can be subtracted by simply subtracting the numerators and writing the common denominator as it is

$$\frac{19}{9}-\frac{5}{9}=\frac{19-5}{9}=\frac{14}{9}$$

Question 11:

0.7499 lies between

(a) 0.7 and 0.74 (c) 0.749 and 0.75

(b) 0.75 and 0.79 (d) 0.74992 and 0.75

Solution: (c) Since, 0.7499 is greater than 0.749 and less than 0.75. Therefore, 0.7499 lies between 0.749 and 0.75.

$0.749 < 0.7499 < 0.75$

Question 12:

0.023 lies between

(a) 0.2 and 0.3 (c) 0.03 and 0.029

(b) 0.02 and 0.03 (d) 0.026 and 0.024

Solution:

(b) Since, 0.023 is greater than 0.02 and less than 0.03. Therefore, 0.023 lies between 0.02 and 0.03.

$0.02 < 0.023 < 0.03$

Question 13:

$\frac{11}{7}$ can be expressed in the form

(a) $7\frac{1}{4}$ (b) $4\frac{1}{7}$ (c) $1\frac{4}{7}$ (d) $11\frac{1}{7}$

Solution:

(c) We have, improper fraction $=\frac{11}{7}$

Now, $7)11(1$

$\frac{7}{4}$

$\therefore \frac{11}{7}=1\frac{4}{7}$

Note *In order to express an improper fraction as a mixed fraction, we first divide the numerator by denominator and obtain the quotient and remainder and then we write the mixed fraction as,* $\text{Quotient}\ \frac{\text{Remainder}}{\text{Denominator}}$

Question 14:

The mixed fraction $5\frac{4}{7}$ can be expressed as

(a) $\frac{33}{7}$ (b) $\frac{39}{7}$

(c) $\frac{33}{4}$ (d) $\frac{39}{4}$

Solution:

(b) We have, mixed fraction $= 5\frac{4}{7}$

Converting mixed fraction into improper fraction by using that formula,

Mixed fraction = Improper fraction

$$= \left(\frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right)$$

$$= \frac{5 \times 7 + 4}{7} = \frac{39}{7}$$

Question 15:

0.07 + 0.008 is equal to

(a) 0.15 (b) 0.015 (c) 0.078 (d) 0.78

Solution:

(c) Converting the given decimals to like decimals, we have 0.070 and 0.008.

$$\begin{array}{r} 0.070 \\ +\,0.008 \\ \hline 0.078 \end{array}$$

Note: Decimals having the same number of digits on the right of the decimal point are known as like decimals.

Question 16:

Which of the following decimals is the greatest?

(a) 0.182 (b) 0.0925 (c) 0.29 (d) 0.038

Solution:

(c) Here, whole part of all numbers are same and tenths part of 0.0925 and 0.038 are same i.e. 0 and tenths part of 0.182 =1/10

and tenths part of 0.29 = 2/10

Hence, 0.29 is the greatest.

Question 17:

Which of the following decimals is the smallest?

(a) 0.27 (b) 1.5 (c) 0.082 (d) 0.103

Solution:

(c) Here, whole part of numbers 0.27, 0.082 and 0.103 are same and is less than 1.5.

Now, we will compare the tenths part of 0.27, 0.082 and 0.103.

Tenths part of 0.27 = 2/10

Tenths part of 0.082 = 0/10

and tenths part of 0.103 =1/10

Clearly, tenths part of 0.082 is smallest.

Hence, 0.082 is the smallest decimal.

Question 18:

13.572 correct to the tenths place is ,

(a) 10 (b) 13.57 (c) 14.5 (d) 13.6

Solution:

(d) For rounding off to tenths place, we look at the hundredths place.
Here, the digit at hundredths place is 7 which is greater than 5. So, the digit at the tenths place (5) will be increased by 1 and digits at the hundredths and thousandths place will be written as equal to zero.
Hence, rounding off 13.572 to nearest tenths, we get 13.6.

Question 19:

15.8 – 6.73 is equal to

(a) 8.07 (b) 9.07 (c) 9.13 (d) 9.25

Solution:

(b) Converting the given decimals to like decimals, we have 15.80 and 6.73.

$$\begin{array}{r} 15.80 \\ -\,6.73 \\ \hline 9.07 \end{array}$$

Note: Decimals having the same number of digits on the right of the decimal point are known as like decimals.

Question 20:

The decimal 0.238 is equal to the fraction

(a) $\frac{119}{500}$ (b) $\frac{238}{25}$ (c) $\frac{119}{25}$ (d) $\frac{119}{50}$

Solution:

(a) We know that a decimal can be converted into a fraction by taking the numerator as the number obtained by removing the decimal point from the given decimal and taking the denominator as the number obtained by inserting as many zeroes with 1 as there are number of places in the decimal part.
Finally, converting the obtained fraction in its lowest form by dividing numerator and denominator by their HCF.

$0.238 = \frac{238}{1000} = \frac{238 \div 2}{1000 \div 2} = \frac{119}{500}$ [∵HCF of 238 and 1000 is 2]

Fill in the Blanks

In questions from 21 to 44, fill in the blanks to make the statements true.

Question 21:

A number representing a part of a ……. is called a fraction.

Solution:

Whole

By definition, a fraction is a number representing a part of a whole.

Question 22:

A fraction with denominator greater than the numerator is called ……. fraction.

Solution:

Proper

It is a standard definition.

Question 23:

Fractions with the same denominator are called ……. fractions.

Solution: Like

It is a standard definition.

Question 24:

13 5/18 is a ……. fraction.

Solution:

Mixed

Since, a combination of a whole number and a proper fraction is called a mixed fraction.

Question 25:

18/5 is an fraction.

Solution:

Improper

Since, a fraction whose numerator is more than or equal to the denominator is called an improper fraction.

Question 26:

7/18 is a …….. fraction.

Solution:

Proper

Since, a fraction whose numerator is less than the denominator is called a proper fraction.

Question 27:

5/8 and 3/8 are …….. proper fractions.

Solution:

Like

Since, fractions having the same denominators are called like fractions and fractions whose numerator is less than the denominator is called a proper fraction.

Question 28:

6/11 and 6/13 are ……. proper fractions.

Solution:

Unlike

Since, fractions having different denominators are called unlike fractions and fractions whose numerator is less than the denominator is called a proper fraction.

Question 29:

The fraction 6/15 in simplest from is …….

Solution:

In order to reduce a fraction to its lowest terms, we divide its numerator and denominator by their HCF.

$$\frac{6}{15} = \frac{6 \div 3}{15 \div 3} = \frac{2}{5}$$ [∵ HCF of 6 and 15 is 3]

Question 30:

The fraction 17/34 in simplest form is …….

Solution:

1/2

In order to reduce a fraction to its lowest terms, we divide its numerator and denominator by their HCF.

$$\frac{17}{34} = \frac{17 \div 17}{34 \div 17} = \frac{1}{2}$$ [∵ HCF of 17 and 34 is 17]

Question 31:

18/135 and 90/675 are proper, unlike and ……. fraction.

Solution:

Equivalent

We know that, two fractions $\frac{a}{b}$ and $\frac{c}{d}$ are equivalent, if $a \times d = c \times d$.

$\therefore \quad \frac{18}{135} \times \frac{90}{675}$

$\Rightarrow \quad 18 \times 675 = 90 \times 135$

$\Rightarrow \quad 12150 = 12150$

Hence, $\frac{18}{135}$ and $\frac{90}{675}$ are equivalent fractions.

Question 32: 8 2/7 is equal to the improper ……. fraction .

Solution:

$\frac{58}{7}$

We know that,

Mixed fraction = Improper fraction

$$= \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}$$

$\therefore \quad 8\frac{2}{7} = \frac{8 \times 7 + 2}{7} = \frac{58}{7}$

Question 33:

87/7 is equal to the mixed fraction …….

Solution: 127

In order to express an improper fraction as a mixed fraction, we first divide the numerator by denominator and obtain the quotient and remainder and then we write the mixed fraction as

$$\text{Quotient} \frac{\text{Remainder}}{\text{Denominator}}$$

$\frac{87}{7} = 12\frac{3}{7}$

$$\left[\begin{array}{l} \because\ 7)\,87(12 \\ \quad\ \underline{7} \\ \quad\ \ 17 \\ \quad\ \underline{14} \\ \quad\ \ \ 3 \end{array}\right]$$

Question 34:

$9 + \frac{2}{10} + \frac{6}{100}$ is equal to the decimal number _____.

Solution:

9.26

Here,

$$9 + \frac{2}{10} + \frac{6}{100}$$

$= 9 + 0.2 + 0.06 = 9.26$

Question 35:

Decimal 16.25 is equal to the fraction …….

Solution:

We know that, a decimal can be converted into a fraction by taking the numerator as the number obtained by removing the decimal point from the given decimal and taking the denominator as the number obtained by inserting as many zeroes with 1 as there are numbers of places in the decimal part.

Finally, converting the obtained fraction in its lowest form by dividing numerator and denominator by their HCF.

$$16.25 = \frac{1625}{100} = \frac{1625 \div 25}{100 \div 25} = \frac{65}{4} \qquad [\because \text{HCF of 1625 and 100 is 25}]$$

Question 36:

Fraction is equal to the decimal number ……

Solution:

0.28

In order to convert fraction into decimal, we first convert it into an equivalent fraction with denominator 10 or 100 or 1000 and then write its numerator and mark decimal point after one place or two place or three places from right towards left if the denominator is 10 or 100 or 1000, respectively.

If the numerator is short of digits, insert zeroes at the left of the numerator.

$$\frac{7}{25} = \frac{7 \times 4}{25 \times 4} = \frac{28}{100} = 0.28$$

Question 37:

$$\frac{17}{9} + \frac{41}{9} = \_\_\_\_\_.$$

Solution:

$\frac{58}{9}$

We have, $\frac{17}{9} + \frac{41}{9} = \frac{17 + 41}{9} = \frac{58}{9}$

Question 38:

$$\frac{67}{14} - \frac{24}{14} = \_\_\_\_\_.$$

Solution:

$\frac{43}{14}$

We have, $\frac{67}{14} - \frac{24}{14} = \frac{67 - 24}{14} = \frac{43}{14}$

Question 39:

$$\frac{17}{2} + 3\frac{1}{2} = \_\_\_\_\_.$$

Solution:

12

We have, $\frac{17}{2} + 3\frac{1}{2} = \frac{17}{2} + \frac{3 \times 2 + 1}{2}$ $\left[\because \text{Mixed fraction} = \frac{(\text{Whole number} \times \text{Denominator} + \text{Numerator})}{\text{Denominator}}\right]$

$= \frac{17}{2} + \frac{7}{2} = \frac{17 + 7}{2} = \frac{24}{2} = \frac{24 \div 2}{2 \div 2}$ $[\because \text{HCF of 24 and 2 is 2}]$

$= 12$

Question 40:

$9\frac{1}{4} - \frac{5}{4} =$ _____.

Solution:

8

We have, $9\frac{1}{4} - \frac{5}{4} = \frac{9 \times 4 + 1}{4} - \frac{5}{4}$

$\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{(\text{Whole number} \times \text{Denominator} + \text{Numerator})}{\text{Denominator}}\right]$

$= \frac{37}{4} - \frac{5}{4}$

$= \frac{37 - 5}{4} = \frac{32}{4}$

$= \frac{32 \div 4}{4 \div 4}$ [$\because$ HCF of 32 and denominator 4 is 4]

$= 8$

Question 41:

4.55 + 9.73 = ……

Solution:

14.28

We have,

$$\begin{array}{r} 4.55 \\ +\ 9.73 \\ \hline 14.28 \end{array}$$

Question 42:

8.76 – 2.68 = ……

Solution:

6.08

We have,

$$\begin{array}{r} 8.76 \\ -2.68 \\ \hline 6.08 \end{array}$$

Question 43:

The value of 50 coins of 50 paisa = Rs …….

Solution:

Value of 1 coin of 50 paise = 50 paise

Value of 50 coins of 50 paise = 50 paise x 50 = 2500 paise Now, we know that 1 Rs.= 100 paise

In order to convert paise to rupee, we divide the given value by 100.

2500 paise = Rs. = Rs.25

Question 44:

3 hundredths + tenths = …….

Solution:

0.33

We have,

$$3 \text{ hundredths} + 3 \text{ tenths} = 3 \times \frac{1}{100} + 3 \times \frac{1}{10} = 0.03 + 0.3$$
$$= 0.33$$

True/False

In questions 45 to 65, state whether the given statements are True or False.

Question 45:

Fractions with same numerator are called like fractions.

Solution: False

Fractions with same denominator are called like fractions.

Question 46:

Fraction 18/19 is in its lowest form.

Solution:

False

We have,

$$\frac{18}{39} = \frac{18 \div 3}{39 \div 3} \qquad [\because \text{HCF of 18 and 39 is 3}]$$
$$= \frac{6}{13}$$

Note: A fraction is in its lowest terms, if its numerator and denominator have no common factor other than 1.

Question 47:

Fractions 15/39 and 45/117 are equivalent fractions.

Solution: True

We have,

$$\frac{15}{39} \text{ and } \frac{45}{117}$$
$$\frac{15}{39} \times \frac{45}{117}$$
$$15 \times 117 = 39 \times 45$$
$$1755 = 1755$$

Question 48:

The sum of two fractions is always a fraction.

Solution:

False

Let two fractions be $\frac{1}{3}$ and $\frac{2}{3}$.

Then, sum $= \frac{1}{3} + \frac{2}{3} = \frac{1+2}{3} = \frac{3}{3} = 1$

which is not a fraction.

Question 49:

The result obtained by subtracting a fraction from another fraction is necessarily a fraction.

Solution:

False

Let $\frac{5}{3}$ be subtracted from $\frac{11}{3}$ i.e. $\frac{11}{3} - \frac{5}{3} = \frac{11-5}{3} = \frac{6}{3} = 2$
which is not a fraction.

Question 50:

If a whole or an object is divided into a number of equal parts, then each part represents a fraction.

Solution:

True

Fraction is a part of a whole.

Question 51:

The place value of a digit at the tenths place is 10 times the same digit at the ones place.

Solution:

False

Let 1.1 be a decimal number having same digits at ones and tenths place.

Now, the place value of 1 at ones place $= 1 \times 1 = 1$

The place value of 1 at tenths place $= 1 \times \frac{1}{10} = \frac{1}{10}$

Clearly, the place value of 1 at tenth place is $\frac{1}{10}$ times of 1 at ones place.

Question 52:

The place value of a digit at the hundredths place is — times the same digit at the tenths place.

Solution:

True

Let 0.11 be a decimal number having same digits at tenths and hundredths place.

Now, the place value of 1 at tenths place $= \frac{1}{10}$ ...(i)

The place value of 1 at hundredths place $= \frac{1}{100}$ ...(ii)

From Eqs. (i) and (ii), we get $\frac{1}{100} = \frac{1}{10} \times \frac{1}{10}$

$\therefore$ The place value of 1 at hundredths place is $\frac{1}{10}$ times of 1 at tenths place.

Question 53:

The decimal 3.725 is equal to 3.72 correct to two decimal places.

Solution:

False

For correcting 3.725 to two decimal places we look at the thousandths place.

Here, the digit at thousandths places is 5. So, the digit at hundredths place 2 will be increased by 1 and 5 will be written as equal to zero.

Hence, 3.725 = 3.73 (correct to two decimal places)

Question 54:

In the decimal form, fraction 55/8 = 3.125.

Solution:

True

In order to convert fraction into decimal, we first convert it into an equivalent fraction with denominator 10 or 100 or 1000 and then write its numerator and mark decimal point after one place or two place or three places from right towards left, if the denominator is 10 or 100 or 1000 respectively.

If the numerator is short of digits, insert zeroes at the left of the numerator.

$$\frac{25 \times 125}{8 \times 125} = \frac{3125}{1000} = 3.125$$

Question 55:

The decimal 23.2 = 23 2/5

Solution:

False

We know that, a decimal can be converted into a fraction by taking the numerator as the number obtained by removing the decimal point from the given decimal and taking the denominator as the number obtained by inserting as many zeroes with 1 as there are number of place in the decimal part.

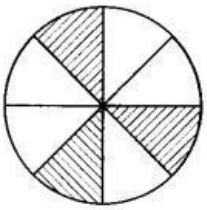
Finally, converting the obtained fraction in its lowest form by dividing numerator and denominator by their HCF and converting it to mixed fraction if required.

$$23.2 = \frac{232}{10} = \frac{232 \div 2}{10 \div 2} = \frac{116}{5} = 23\frac{1}{5}$$

$$\left[\begin{array}{r} \because 5)116(23 \\ \underline{10} \\ 16 \\ \underline{15} \\ 1 \end{array}\right]$$

Question 56:

The fraction represented by the shaded portion in the following figure is 3/8



Solution:

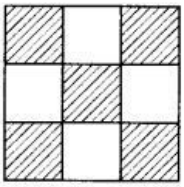
True

Total equal parts in figure = 8 and shaded parts in figure = 3

Now, the fraction of shaded part to the total parts = 3/8

Question 57:

The fraction represented by the unshaded portion in the following figure



Solution:

False

Total equal parts in figure = 9 and unshaded parts in figure = 4

Now, the fraction of unshaded part to the total parts = 4/9

Question 58:

$$\frac{25}{19} + \frac{6}{19} = \frac{31}{38}$$

Solution:

False

Since, fractions with same denominators can be added by simply adding the numerators and writing the common denominator as it is.

$$\frac{25}{19}+\frac{6}{19}=\frac{25+6}{19}=\frac{31}{19}$$

Question 59:

$$\frac{8}{18}-\frac{8}{15}=\frac{8}{3}$$

Solution:

False

We have, $\frac{8}{18}-\frac{8}{15}$

LCM of 18 and 15

2	18, 15
3	9, 15
3	3, 5
5	1, 5
	1, 1

$\therefore$ LCM of 18 and $15 = 2 \times 3 \times 3 \times 5 = 90$

Now, converting the given fractions to equivalent fraction with denominator 90.

$$\frac{8\times 5}{18\times 5}=\frac{40}{90} \text{ and } \frac{8\times 6}{15\times 6}=\frac{48}{90}$$

$\therefore$ $$\frac{40}{90}-\frac{48}{90}=\frac{40-48}{90}=\frac{-8}{90}$$

Question 60:

$$\frac{7}{12}+\frac{11}{12}=\frac{3}{2}$$

Solution:

True

Since,

$$\frac{7}{12}+\frac{11}{12}=\frac{7+11}{12}=\frac{18}{12}=\frac{18\div 6}{12\div 6} \quad [\because \text{HCF of 18 and 12 is 6}]$$

$$=\frac{3}{2}$$

Question 61:

3.03 + 0.016 = 3.019

Solution:

False

Converting the given decimals to like decimals and then adding. 3.030 + 0.016 = 3046

Question 62: 42.28 – 3.19 = 39.09

Solution:

True

Given, 42.28-3.19 = 39.09

$$\left[\begin{array}{r} \because\ 42.28 \\ -3.19 \\ \hline 39.09 \end{array}\right]$$

Question 63:

$\frac{16}{25} > \frac{13}{25}$

Solution:

True

We know that, if two fractions have same denominator, then fraction with greater numerator is greater.

Question 64:

19.25 < 19.053

Solution:

False

Here, the whole number part of both the decimal numbers is same.

Now, tenths part of $19.25 = \frac{2}{10}$

and tenths part of $19.053 = \frac{0}{10}$

Clearly, $\frac{0}{10} < \frac{2}{10}$

$\therefore \quad 19.25 > 19.053$

Question 65:

13.730 = 13.73

Solution:

True

Since, the value of zero at the last place in decimal part is negligible.

In each of the questions 66 to 71, fill in the blanks using "<" or '=',

Question 66:

$\frac{11}{16} \_\_ \frac{14}{15}$

Solution:

'<'

In order to compare fractions with different denominators, we will convert them to like fractions.

LCM of 16 and 15

2	16, 15
2	8, 15
2	4, 15
2	2, 15
3	1, 15
5	1, 5
	1, 1

$\therefore$ LCM of 16 and $15 = 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 240$

Now, converting each of the given fractions to an equivalent fractions with denominator 240.

$$\frac{11 \times 15}{16 \times 15} = \frac{165}{240} \text{ and } \frac{14 \times 16}{15 \times 16} = \frac{224}{240}$$

Clearly, $\frac{224}{240} > \frac{165}{240}$

$\therefore \quad \frac{11}{16} < \frac{14}{15}$

Question 67:

$\frac{8}{15}$ — $\frac{95}{14}$

Solution:

'<'

In order to compare fraction with different denominators we will convert them to like fractions.

LCM of 15 and 14

2	15, 14
3	15, 7
5	5, 7
7	1, 7
	1, 1

$\therefore$ LCM of 15 and $14 = 2 \times 3 \times 5 \times 7 = 210$

Now, converting each of the given fraction to an equivalent fraction with denominator 210.

$$\frac{8 \times 14}{15 \times 14} = \frac{112}{210} \text{ and } \frac{95 \times 15}{14 \times 15} = \frac{1425}{210}$$

Clearly, $\frac{1425}{210} > \frac{112}{210}$

$\therefore$ $\frac{8}{15} < \frac{95}{14}$

Question 68:

$\frac{12}{75}$ — $\frac{32}{200}$

Solution:

'='

In order to compare fractions with different denominators, we will convert them to like fractions.

LCM of 75 and 200

2	75, 200
2	75, 100
2	75, 50
3	75, 25
5	25, 25
5	5, 5
	1, 1

$\therefore$ LCM of 75 and $200 = 2 \times 2 \times 2 \times 3 \times 5 \times 5 = 600$

Now, converting each of the given fractions to equivalent fractions with denominator 600.

$$\frac{12 \times 8}{75 \times 8} = \frac{96}{600} \text{ and } \frac{32 \times 3}{200 \times 3} = \frac{96}{600}$$

Clearly, $\frac{96}{600} = \frac{96}{600}$

$\therefore$ $\frac{12}{75} = \frac{32}{200}$

Question 69:

3.25 — 3.4

Solution:

'<'

Here, the whole number part of both the decimal numbers is same.

Now, tenths part of $3.25 = \frac{2}{10}$ and tenths part of $3.4 = \frac{4}{10}$

Clearly, $\frac{2}{10} < \frac{4}{10}$

$\therefore$ $3.25 < 3.4$

Question 70:

18/15 — 1.3

Solution:

'<'

For comparing a fraction and a decimal, we will convert both of them to either into like fractions or into like decimals.

Now, $1.3 = \frac{13}{10}$

LCM of 10 and 15

2	10, 15
3	5, 15
5	5, 5
	1, 1

$\therefore$ LCM of 10 and $15 = 2 \times 3 \times 5 = 30$

Now, converting each of the given factions to equivalent fractions with denominator 30.

$\frac{18 \times 2}{15 \times 2} = \frac{36}{30}$ and $\frac{13 \times 3}{10 \times 3} = \frac{39}{30}$

Clearly, $\frac{36}{30} < \frac{39}{30}$ [$\because 36 < 39$]

$\therefore$ $\frac{18}{15} < 1.3$

Question 71:

6.25 — 25/4

Solution:

'='

For comparing a fraction and a decimal, we will convert both of them to either into like fractions or into like decimals.

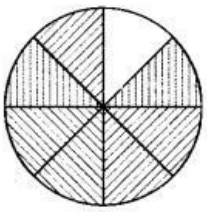
Now, $\frac{25}{4} = \frac{25 \times 25}{4 \times 25} = \frac{625}{100} = 6.25$

Clearly, $6.25 = 6.25$

$\therefore$ $6.25 = \frac{25}{4}$

Question 72:

Write the fraction represented by the shaded portion of the following figure.



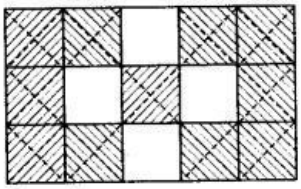
Solution:

Circle is divided into 8 equal parts and number of shaded parts are 7.

$\therefore$ Fraction of shaded portion to the total portion $= \frac{\text{Total number of shaded parts}}{\text{Total parts}} = \frac{7}{8}$

Question 73:

Write the fraction represented by the unshaded portion of the following figure.



Solution:

Rectangle is divided into 15 equal parts and number of unshaded parts are 4.

Fraction of unshaded portion to the total portion = 4/15.

Question 74:

Ali divided one fruit cake equally among six person. What part of the cake he gave to each person?

Solution:

Given, total number of fruit cake = 1

Ali divided one fruit cake equally among six persons.

The part of cake given to one person = 1/6

Hence, the required part is 1/6.

Question 75:

Arrange 12.142, 12.124, 12.104, 12.401 and 12.214 in ascending order.

Solution:

Given numbers are 12.142, 12.124, 12.104, 12.401 and 12.214.

$\therefore \quad 12.142 = 10 + 2 + \frac{1}{10} + \frac{4}{100} + \frac{2}{1000}$

$12.124 = 10 + 2 + \frac{1}{10} + \frac{2}{100} + \frac{4}{1000}$

$12.104 = 10 + 2 + \frac{1}{10} + \frac{0}{100} + \frac{4}{1000}$

$12.401 = 10 + 2 + \frac{4}{10} + \frac{0}{100} + \frac{1}{1000}$

$12.214 = 10 + 2 + \frac{2}{10} + \frac{1}{100} + \frac{2}{1000}$

Here, whole part of all numbers are same and tenths part of 12.142, 12.124 and 12.104 are same.

Now, tenths part of $12.401 = \frac{4}{10}$

and tenths part of $12.214 = \frac{2}{10}$

$\because \quad \frac{4}{10} > \frac{2}{10}$

$\therefore \quad 12.401 > 12.214$

Again, hundredths part of $12.142 = \frac{4}{100}$

$\therefore$ Hundredths part of $12.124 = \frac{2}{100}$

and hundredths part of $12.104 = \frac{0}{100}$

$\therefore \quad \frac{4}{100} > \frac{2}{100} > \frac{0}{100}$

$\therefore \quad 12.142 > 12.124 > 12.104$

Hence, the ascending order of given number are

$12.104 < 12.124 < 12.142 < 12.214 < 12.401.$

Question 76:

Write the largest four digit decimal number less than 1 using the digits 1, 5, 3 and 8 once.

Solution:

Given digits are 1,5, 3, 8 and the number should be less than 1. So, the whole part will 0.

Now, for making largest four digit decimal number we will arrange the given digits in descending order after decimal point.

Required decimal number = 0.8531

Question 77:

Using the digits 2, 4, 5 and 3 once, write the smallest four digit decimal number.

Solution:

Given digits are 2, 4, 5 and 3.

For making smallest decimal number we will arrange the given digits in ascending order after decimal point.

Required decimal number = 0.2345

Question 78:

Express 11/20 as a decimal.

Solution:

In order to convert fraction into decimal, we first convert it into an equivalent fraction with denominator 10 or 100 or 1000 and then write its numerator and mark decimal point after one place or two place or three places from right towards left, if the denominator is 10 or 100 or 1000 respectively.

If the numerator is short of digits, insert zeroes at the left of the numerator.

11/20 x 5/5 = = 0.55

Question 79:

Express 6 2/3 as an improper fraction.

Solution:

$$\text{We know that, } 6\frac{2}{3} = \frac{6\times 3+2}{3} \qquad \left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$$

$$= \frac{20}{3}$$

Question 80:

Express 3- as a decimal.

Solution:

In order to convert fraction into decimal, we first convert it into an equivalent fraction with denominator 10 or 100 or 1000 and then write its numerator and mark decimal point after one place on two place or three places from right towards left, if the denominator is 10 or 100 or 1000 respectively.

If the numerator is short of digits, insert zeroes at the left of the numerator.

$$\therefore \qquad 3\frac{2}{5} = \frac{5\times 3+2}{5} \qquad \left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$$

$$= \frac{17}{5}$$

$$\text{Now,} \qquad \frac{17\times 2}{5\times 2} = \frac{34}{10} = 3.4$$

$$\therefore \qquad 3\frac{2}{5} = 3.4$$

Question 81:

Express 0.041 as a fraction.

Solution:

We know that, a decimal can be converted into a fraction by taking the numerator as the number obtained by removing the decimal point from the given decimal and taking the denominator as the number obtained by inserting as many zeroes with 1 as there are numbers of place in the decimal part.

Finally, converting the obtained fraction in its lowest form by dividing numerator and denominator by this HCF.

$$\therefore 0.041 = \frac{041}{1000} = \frac{41}{1000}$$

Question 82:

Express 6.03 as a mixed fraction.

Solution:

We know that, a decimal can be converted into a fraction by taking the numerator as the number obtained by removing the decimal point from the given decimal and taking the denominator as the number obtained by inserting as many zeroes with 1 as there are number of places in the decimal part. Finally, converting the obtained fraction in its lowest form by dividing numerator and denominator by their HCF.

$$6.03 = \frac{603}{100} = 6\frac{3}{100}$$

$$\begin{bmatrix} \because 100)603(6 \\ \underline{600} \\ 3 \end{bmatrix}$$

Question 83:

Convert 5201 g to kg.

Solution:

We know that, 1 kg = 1000 g

Now, for converting g into kg, we have to divide the given value by 1000. 5201,

$$\therefore 5201\,\text{g} = \frac{5201}{1000}\,\text{kg} = 5.201\,\text{kg}$$

Question 84:

Convert 2009 paise to rupees and express the result as a mixed fraction.

Solution:

We know that, Rs. 1 = 100 paise

Now, for converting paise into rupees, we have to divide the given value by 100.

Now, for converting paise into rupees, we have to divide the given value by 100.

$$\therefore 2009 \text{ paise} = ₹\frac{2009}{100}$$

$$= ₹20\frac{9}{100} = ₹20.09$$

$$\begin{bmatrix} \because 100)2009(20 \\ \underline{200} \\ 9 \end{bmatrix}$$

Question 85:

Convert 1537 cm to m and express the result as an improper fraction.

Solution:

We know that, 1 m = 100 cm

Now, for converting cm into m, we have to divide the given value by 100.

Now, for converting cm into m, we have to divide the given value by 100.

$$\therefore 1537 \text{ cm} = \frac{1537}{100} \text{ m} = 15\frac{37}{100} \text{ m} = 15.37 \text{ m}$$

$$\left[\begin{array}{r} \because 100)1537(15 \\ \underline{100} \\ 537 \\ \underline{500} \\ 37 \end{array}\right]$$

Question 86:

Convert 2435 m to km and express the result as mixed fraction.

Solution:

We know that, 1 km = 1000 m

Now, for converting m into km, we have divide the given value by 1000.

Now, for converting m into km, we have divide the given value by 1000.

$$\therefore 2435 \text{ m} = \frac{2435}{1000} \text{ km} = 2\frac{435}{1000} \text{ km}$$

$$= 2.435 \text{ km}$$

$$\left[\begin{array}{r} \because 1000)2435(2 \\ \underline{2000} \\ 435 \end{array}\right]$$

Question 87:

Arrange the fractions and – in ascending order.

Solution:

In order to arrange the given fractions in ascending order, we have to convert them into like fractions. So, LCM of the denominators, i.e. 3, 4, 2 and 6 = 2 x 2 x 3 = 12.

2	3, 4, 2, 6
2	3, 2, 1, 3
3	3, 1, 1, 3
	1, 1, 1, 1

$$\frac{2\times4}{3\times4} = \frac{8}{12}, \frac{3\times3}{4\times3} = \frac{9}{12}$$

$$\frac{1\times6}{2\times6} = \frac{6}{12}, \frac{5\times2}{6\times2} = \frac{10}{12}$$

Clearly, $\frac{6}{12} < \frac{8}{12} < \frac{9}{102} < \frac{10}{12}$ [in like fractions, the fraction whose numerator is smaller will be smaller]

$\therefore$ $\frac{1}{2} < \frac{2}{3} < \frac{3}{4} < \frac{5}{6}$

Question 88:

Arrange the fractions and 6/7, 7/8, 4/5 and 3/4 in descending order.

Solution:

In order to arrange the given fractions in descending order, we have to convert them into like fractions. So, LCM of the denominators, i.e. 7, 8, 5 and 4

= 2 x 2 x 2 x 5 x 7 = 280

Now, we convert the given fractions to equivalent fractions with denominator 280.

2	7, 8, 5, 4
2	7, 4, 5, 2
2	7, 2, 5, 1
5	7, 1, 5, 1
7	7, 1, 1, 1
	1, 1, 1, 1

$$\frac{6\times 40}{7\times 40}=\frac{240}{280},\ \frac{7\times 35}{8\times 35}=\frac{245}{280},\ \frac{4\times 56}{5\times 56}=\frac{224}{280},\ \frac{3\times 70}{4\times 70}=\frac{210}{280}$$

Clearly, $\frac{245}{280}>\frac{240}{280}>\frac{224}{280}>\frac{210}{280}$ [in like fractions, fraction whose numerator is largest will be the largest fraction]

$\therefore \quad \frac{7}{8}>\frac{6}{7}>\frac{4}{5}>\frac{3}{4}$

Question 89:

Write 3/4 as a fraction with denominator 44.

Solution:

Given fraction = 3/4

In order to express it, as a fraction with denominator 44, we will multiply the denominator numerator by 11, to make it an equivalent fraction of

$$\therefore \frac{3}{4}=\frac{3\times 11}{4\times 11}=\frac{33}{44}$$

Question 90:

Write 5/6 as a fraction with numerator 60.

Solution:

Given fraction = 5/6

In order to express it, as the fraction with numerator 60, we will multiply the numerator denominator by 12, to make it an equivalent fraction of

$$\therefore \frac{5}{6}=\frac{5\times 12}{6\times 12}=\frac{60}{72}$$

Question 91:

Write 128/9 as a mixed fraction.

Solution:

Given, $\frac{129}{8}$

Now,
$$\begin{array}{r} 8)129(16 \\ \underline{8} \\ 49 \\ \underline{48} \\ 1 \end{array}$$

$$\therefore \frac{129}{8}=16\frac{1}{8}$$

Note *In order to express an improper fraction as a mixed fraction, we first divide the numerator by denominator and obtain the quotient and remainder and then we write the mixed fractions as*

$$Quotient\ \frac{Remainder}{Denominator}$$

Question 92:

Round off 20.83 to nearest tenths.

Solution:

For rounding off the tenths place, we look at the hundredths place.

Here, the digit at hundredths place is 3 which is less then 5. So, the digit at the tenths place 8 will not be increased by 1 and 3 will be written as equal to zero.
Hence, rounding off 20.83 to nearest tenths, we get 20.80.

Question 93:

Round off 75.195 to nearest hundredths.

Solution:

For rounding off to hundredths place, we look at the thousandths place.
Here, the digit at thousandths place is 5 which is equal to 5. So, the digit at the hundredths place 9 will be increased by 1 and 5 will be written as equal to zero.
Hence, rounding off 75.195 to nearest hundredths, we get 75.200.

Question 94:

Round off 27.981 to nearest tenths.

Solution:

For rounding off the tenths place, we look at the hundredths place.
Here, the digit at hundredths place is 8 which is greater than 5. So, the digit at tenths place 9 will be increased by 1 and digits at the hundredths and thousandths place will be written as equal to zero.
Hence, rounding off 27.981 to nearest tenths, we get 28.

Question 95:

Add the fractions 3/8 and 2/3.

Solution:

Converting the given fractions into like fractions, we have
LCM of the denominators of $\frac{3}{8}$ and $\frac{2}{3}$

2	8, 3
2	4, 3
2	2, 3
3	1, 3
	1, 1

$\therefore$ LCM of 8 and $3 = 2 \times 2 \times 2 \times 3 = 24$
Now, we convert the given fractions into an equivalent fractions with denominator 24.
So, $\frac{3}{8} = \frac{3 \times 3}{8 \times 3} = \frac{9}{24}$ and $\frac{2}{3} = \frac{2 \times 8}{3 \times 8} = \frac{16}{24}$
$\therefore$ $\frac{3}{8} + \frac{2}{3} = \frac{9}{24} + \frac{16}{24} = \frac{25}{24}$

Question 96:

Add the fractions 3/8 and 6 3/4.

Solution:

We have, $\frac{3}{8} + 6\frac{3}{4}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{3}{8} + \frac{6 \times 4 + 3}{4} = \frac{3}{8} + \frac{27}{4}$

$= \frac{3 \times 1}{8 \times 1} + \frac{27 \times 2}{4 \times 2}$ [$\because$ LCM of 8 and 4 is 8, so convert each fraction to an equivalent fraction with denominator 8]

$= \frac{3}{8} + \frac{54}{8} = \frac{3 + 54}{8} = \frac{57}{8} = 7\frac{1}{8}$ $\left[\because 8)57(7, \frac{56}{1}\right]$

Question 97:

Subtract 1/6 from 1/2.

Solution:

Converting the given fractions into like fractions.

LCM of the denominators of $\frac{1}{6}$ and $\frac{1}{2}$

2	6, 2
3	3, 1
	1, 1

$\therefore$ LCM of 6 and $2 = 2 \times 3 = 6$

Now, we convert the given fractions into equivalent fractions with denominator 6.

So, $\frac{1\times1}{6\times1} = \frac{1}{6}$ and $\frac{1}{2} = \frac{1\times3}{2\times3} = \frac{3}{6}$

$\therefore \quad \frac{1}{2} - \frac{1}{6} = \frac{3}{6} - \frac{1}{6} = \frac{3-1}{6} = \frac{3\div2}{6\div2} = \frac{1}{3}$

[$\because$ for reducing a fraction to its lowest terms, we divide its numerator and denominator by their HCF]

Question 98:

Subtract 8 3/8 from 100/9.

Solution:

We have, $\frac{100}{9} - 8\frac{1}{3}$

$= \frac{100}{9} - \frac{8\times3+1}{3}$

[$\because$ Mixed fraction = Improper fraction $= \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}$]

$= \frac{100}{9} - \frac{25}{3} = \frac{100\times1}{9\times1} - \frac{25\times3}{3\times3}$

[$\because$ LCM of 9 and 3 is 9, so convert each fraction to an equivalent fraction with denominator 9]

$= \frac{100}{9} - \frac{75}{9} = \frac{100-75}{9} = \frac{25}{9} = 2\frac{7}{9}$

[$\because$ 9)25(2
18
7]

Question 99:

Subtract 1 1/4 from 6 1/2.

Solution:

We have, $6\frac{1}{2} - 1\frac{1}{4}$

$= \frac{6\times2+1}{2} - \frac{1\times4+1}{4}$

[$\because$ Mixed fraction = Improper fraction $= \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}$]

$= \frac{13}{2} - \frac{5}{4} = \frac{13\times2}{2\times2} - \frac{5\times1}{4\times1}$

[$\because$ LCM of 2 and 4 is 4 so convert each fraction to an equivalent fraction with denominator 4]

$= \frac{26}{4} - \frac{5}{4}$

$= \frac{26-5}{4} = \frac{21}{4} = 5\frac{1}{4}$

[$\because$ 4)21(5
20
1]

Question 100:

Add 1 1/4 and 6 1/2.

Solution:

We have, $1\frac{1}{4} + 6\frac{1}{2}$

$= \frac{1\times 4+1}{4} + \frac{6\times 2+1}{2}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{5}{4} + \frac{13}{2} = \frac{5\times 1}{4\times 1} + \frac{13\times 2}{2\times 2}$ [$\because$ LCM of 4 and 2 is 4, so convert each fraction to an equivalent fraction with denominator 12]

$= \frac{5}{4} + \frac{26}{4}$

$= \frac{5+26}{4} = \frac{31}{4} = 7\frac{3}{4}$ $\left[\because 4)\,31(7,\ 28,\ 3\right]$

Question 101:

Katrina rode her bicycle 6- km in the morning and 8 3/4 km in the evening. Find the distance traveled by her altogether on that day. ,

Solution:

Given, bicycle rode by Katrina in the morning = $6\frac{1}{2}$ km

and bicycle rode by Katrina in the evening = $8\frac{3}{4}$ km

In order to know, the total distance covered by her on that day, we will add $6\frac{1}{2}$ km and $8\frac{3}{4}$ km.

We have, $6\frac{1}{2} + 8\frac{3}{4} = \frac{6\times 2+1}{2} + \frac{8\times 4+3}{4}$

$\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{13}{2} + \frac{32+3}{4}$ [$\because$ LCM of 2 and 4 is 4, so convert each fraction to an equivalent fraction with denominator 4]

$= \frac{13\times 2}{2\times 2} + \frac{35\times 1}{4\times 1} = \frac{26}{4} + \frac{35}{4} = \frac{26+35}{4} = \frac{61}{4} = 15\frac{1}{4}$ km $\left[4)\,61(15,\ 4,\ 21,\ 20,\ 1\right]$

Hence, the distance travelled by Katrina together on that day is $15\frac{1}{4}$ km.

Question 102:

A rectangle is divided into certain number of equal parts. If 16 of the parts, so formed represent the fraction 1/4 , find the number of parts in which the rectangle has been divided.

Solution:

Let a rectangle be divided into x equal parts.

Now, 16 of the parts represent = $\frac{1}{4}$

Also, 16 parts of $x = \frac{16}{x}$

$\therefore \quad \frac{16}{x} = \frac{1}{4}$

$\Rightarrow \quad x = 16\times 4 = 64$ parts

Hence, the rectangle is divided into 64 equal parts.

Question 103:

Grip size of a tennis racquet is 11 9/80 cm. Express the size as an improper fraction.

Solution:

Given, grip size of a tennis racquet $= 11\frac{9}{80}$ cm

In order to convert a mixed fraction into an improper fraction, we use following formula Improper fraction,

$$\text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}$$

$$\therefore \quad 11\frac{9}{80} = \frac{11 \times 80 + 9}{80} = \frac{880 + 9}{80} = \frac{889}{80} \text{ cm}$$

Question 104:

On an average 1/10 of the food eaten is turned into organism's own body is available for the next level of consumers in a food chain.What fraction of food eaten is not available for the next user?

Solution:

Quantity of food eaten which turned into organism's own body $= \frac{1}{10}$ of the total food

Now, the quantity of food eaten which is not available for the next level

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

Hence, the required fraction $= \frac{9}{10}$

Question 105:

Mr. Rajan got a job at the age of 24 yr and he got retired from the job at the age of 60 yr. What fraction of his age till retirement was he in the job?

Solution:

Given, Rajan's age on the joining =24 yr and retirement age = 60 yr

$\therefore$ The fraction of his age till retirement, when he was in the job

$$= \frac{\text{Total years he did the job}}{\text{Retirement age}} = \frac{36}{60} \qquad [\because \text{HCF of } 36 \text{ and } 60 = 12]$$

$$= \frac{36 \div 12}{60 \div 12} = \frac{3}{5}$$

Hence, the required fraction is $\frac{3}{5}$.

Question 106:

The food we eat remains in the stomach for a maximum of 4 h. For what fraction of a day, does it remain there?

Solution:

Given, maximum hours for which food remains in the stomach = 4 We know that, 1 day = 24 h

The fraction of a day for which food remains in the stomach 4 h/24 h = 1/6

So, the food remains in the stomach for 1/6 past of the day.

Question 107:

What should be added to 25.5 to get 50?

Solution:

To get the required result, we have to subtract 25.5 from 50.

$$\begin{array}{r} 50.0 \\ -\ 25.5 \\ \hline 24.5 \end{array}$$

So, 24.5 should be added to 25.5 to get 50.

Question 108:

Alok purchased 1 kg 200 g potatoes, 250 g dhania, 5 kg 300 g onion, 500 g palak and 2 kg 600 g tomatoes. Find the total weight of his purchases in kilograms.

Solution:

Firstly, we convert all the weight in the same unit,
i.e. gram into kilogram and then find the total weight.

Given, weight of potatoes $= 1\,kg + 200\,g$

$$= 1\,kg + 200\,g = 1\,kg + \frac{200}{1000}\,kg$$

$$= 1\,kg + 0.200\,kg \qquad \left[\because 1\,g = \frac{1}{1000}\,kg\right]$$

$$= 1.200\,kg$$

Weight of dhania $= 250\,g = \frac{250}{1000}\,kg = 0.250\,kg$

Weight of onion $= 5\,kg\ 300\,g = 5\,kg + 300\,g$

$$= 5\,kg + \frac{300}{1000}\,kg = 5\,kg + 0.300\,kg$$

$$= 5.300\,kg$$

Weight of palak $= 500\,g = \frac{500}{1000}\,kg = 0.500\,kg$

Weight of tomatoes $= 2\,kg\ 600\,g = 2\,kg + 600\,g$

$$= 2\,kg + \frac{600}{1000}\,kg \qquad \left[\because 1\,g = \frac{1}{1000}\,kg\right]$$

$$= 2\,kg + 0.600\,kg = 2.600\,kg$$

$\therefore$ Total weight of his purchases in kg

= Weight of potatoes + Weight of dhania + Weight of onion + Weight of palak + Weight of tomatoes

$= 1.200\,kg + 0.250\,kg + 5.300\,kg + 0.500\,kg + 2.600\,kg$

$= [1.200 + 0.250 + 5.300 + 0.500 + 2.600]\,kg = 9.850\,kg$

Hence, the total weight is 9.850 kg.

Question 109:

Arrange in ascending order.

0.011, 1.001, 0.101, 0.110

Solution:

Given numbers are 0.011, 1.001, 0.101 and 0.110.

$\therefore$ $0.011 = 0 + \frac{0}{10} + \frac{1}{100} + \frac{1}{1000}$

$1.001 = 1 + \frac{0}{10} + \frac{0}{100} + \frac{1}{1000}$

$0.101 = 0 + \frac{1}{10} + \frac{0}{100} + \frac{1}{1000}$

$0.110 = 0 + \frac{1}{10} + \frac{1}{100} + \frac{0}{1000}$

Here, the whole number part of 1.001 is greater than 0.011, 0.101 and 0.110.

Now, tenths part of $0.011 = \frac{0}{10}$

Tenths part of $0.101 = \frac{1}{10}$

and tenths part of $0.110 = \frac{1}{10}$

$\therefore$ $0.011 < 0.101$ and $0.011 < 0.110$

Again, hundredths part of $0.101 = \frac{0}{100}$

and hundredths part of $0.110 = \frac{1}{100}$

$\therefore$ $0.101 < 0.110$

Hence, the ascending order of given numbers are

$0.011 < 0.101 < 0.110 < 1.001$

Question 110:

Add the following.

20.02 and 2.002

Solution:

Converting the given decimals to like decimals, we have 20.020 and 2.002. Now,

$$\begin{array}{r} 20.020 \\ +\ 2.002 \\ \hline 22.022 \end{array}$$

Question 111:

It was estimated that because of people switching to Metro trains, about 33000 tonne of CNG, 3300 tonne of diesel and 21000 tonne of petrol was saved by the end of year 2007. Find the fraction of

(i) the quantity of diesel saved to the quantity of petrol saved

(ii) the quantity of diesel saved to the quantity of CNG saved.

Solution:

Given, quantity of CNG saved = 33000 tonne

Quantity of diesel saved = 3300 tonne

Quantity of petrol saved = 21000 tonne

(i) Fraction of the quantity of diesel saved to the quantity of petrol saved $= \frac{3300}{21000}$

$= \frac{33}{210} = \frac{33 \div 3}{210 \div 3}$ [$\because$ HCF of 33 and 210 is 3]

$= \frac{11}{70}$

(ii) Fraction of the quantity of diesel to the quantity of CNG saved

$= \frac{3300}{33000} = \frac{33}{330} = \frac{33 \div 33}{330 \div 33} = \frac{1}{10}$

Question 112:

Energy content of different foods are as follows:

Energy content of different foods are as follows:

Food	Energy content per kg
Wheat	3.2 J
Rice	5.3 J
Potatoes (Cooked)	3.7 J
Milk	3.0 J

Which food provides the least energy and which provides the maximum?

Express the least energy as a fraction of the maximum energy.

Solution:

In the given table, we see that the minimum value is 3.0 J and the maximum value is 5.3 J.

$\therefore$ Least energy provide by food = 3.0 J i.e. milk

Food which provide the maximum energy = 5.3 J i.e. rice

$$\therefore \quad \text{Required fraction} = \frac{\text{Least energy}}{\text{Maximum energy}} = \frac{3.0}{5.3} = \frac{30}{53}$$

Question 113:

A cup is 1/3 full of milk, what part of the cup is still to be filled by milk to make it full?

Solution:

Given, cup full of milk $= \frac{1}{3}$

Remaining part of the cup which is not filled by milk $= 1 - \frac{1}{3} = \frac{3-1}{3} = \frac{2}{3}$

Hence, part of the cup still to be filled is $\frac{2}{3}$.

Question 114:

Mary bought 3 1/2 m of lace. She used 1 3/4 m of lace for her new dress.

How much lace is left with her?

Solution:

Given, Mary bought lace $= 3\frac{1}{2}$ m

and lace used for new dress $= 1\frac{3}{4}$ m

In order to find the lace left with her, we will subtract $1\frac{3}{4}$ m form $3\frac{1}{2}$ m.

$\therefore$ Lace left with her $= 3\frac{1}{2} - 1\frac{3}{4}$

$$= \frac{3\times 2+1}{2} - \frac{4\times 1+3}{4} \quad \left[\because \text{Mixed fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$$

$$= \frac{7}{2} - \frac{7}{4} = \frac{7\times 2}{2\times 2} - \frac{7\times 1}{4\times 1} \quad [\because \text{LCM of 2 and 4 is 4, so convert each of the fraction to an equivalent fraction with denominator 4.}]$$

$$= \frac{14}{4} - \frac{7}{4} = \frac{7}{4} = 1\frac{3}{4}\text{ m} \quad [\because 4)\,7\,(1\ \tfrac{4}{3}]$$

So, $1\frac{3}{4}$ m lace is left with her.

Question 115:

When Sunita weighed herself on Monday, she found that she had 1 3

gained 1 1/4 kg. Earlier her weight was 46 3/8 kg. What was her weight on 4 8 Monday?

Solution:

Given, Sunita's earlier weight = $46\frac{3}{8}$ kg

and gain in weight = $1\frac{1}{4}$ kg

In order to find Sunita's weight on Monday, we will add $46\frac{3}{8}$ and $1\frac{1}{4}$.

$\therefore$ Sunita's weight on Monday = $46\frac{3}{8} + 1\frac{1}{4}$

$= \frac{46 \times 8 + 3}{8} + \frac{1 \times 4 + 1}{4}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{371}{8} + \frac{5}{4} = \frac{371 \times 1}{8 \times 1} + \frac{5 \times 2}{4 \times 2}$ [$\because$ LCM of 4 and 8 is 8, so convert each of the fraction to an equivalent fraction with denominator 8.]

$= \frac{371}{8} + \frac{10}{8} = \frac{381}{8} = 47\frac{5}{8}$ kg

[$\because$ 8) 381 (47
32
61
56
5]

Hence, the weight of Sunita on Monday was $47\frac{5}{8}$ kg.

Quantity 116:

Sunil purchased 12 1/2 L of juice on Monday and 14 3/4 L of juice on Tuesday. How many litres of juice did he purchase together in two days?

Solution:

Given, juice purchased by Sunil on Monday = $12\frac{1}{2}$ L

and juice purchased by Sunil on Tuesday = $14\frac{3}{4}$ L

In order to find the total juice purchased, we will add $12\frac{1}{2}$ and $14\frac{3}{4}$.

$\therefore$ Total juice purchased = $12\frac{1}{2} + 14\frac{3}{4}$

$= \frac{12 \times 2 + 1}{2} + \frac{14 \times 4 + 3}{4}$

$\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{25}{2} + \frac{59}{4}$

$= \frac{25 \times 2}{2 \times 2} + \frac{59 \times 1}{4 \times 1}$ [$\therefore$ LCM of 2 and 4 is 4, so convert each of the given fraction to an equivalent fraction with denominator 4.]

$= \frac{50}{4} + \frac{59}{4} = \frac{50 + 59}{4} = \frac{109}{4} = 27\frac{1}{4}$ L

[$\because$ 4) 109 (27
8
29
28
1]

So, he purchased $27\frac{1}{4}$ L of juice in two days.

Question 117:

Nazima gave 2 3/4 L out of the 5 1/2 L of juice she purchased to her friends.

How many litres of juice is left with her?

Solution:

Given, quantity of juice Nazima has $= 5\frac{1}{2}$ L

and she gave $2\frac{3}{4}$ L out of this to her friends.

In order to find the juice left with her, we will subtract $2\frac{3}{4}$ L from $5\frac{1}{2}$ L.

$\therefore$ Juice left with her $= 5\frac{1}{2} - 2\frac{3}{4}$

$= \frac{5\times 2+1}{2} - \frac{2\times 4+3}{4}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{11}{2} - \frac{11}{4} = \frac{11\times 2}{2\times 2} - \frac{11}{4}$ [$\because$ LCM of 2 and 4 is 4, so convert each of the given fraction to an equivalent fraction with denominator 4.]

$= \frac{22}{4} - \frac{11}{4} = \frac{22-11}{4} = \frac{11}{4} = 2\frac{3}{4}$ L [$\because$ 4) 11 (2, 8, 3]

So, $2\frac{3}{4}$ L of juice is left with her.

Question 118:

Roma gave a wooden board of length 150 1/4 cm to a carpenter for making a shelf. The Carpenter sawed off a piece of 40 1/5 cm from it.

What is the length of the remaining piece?

Solution:

Given, total length of wooden board given by Roma $= 150\frac{1}{4}$ cm

and the length of piece sawed off by carpenter $= 40\frac{1}{5}$ cm

In order to find the length of the remaining piece, we will subtract $40\frac{1}{5}$ from $150\frac{1}{4}$.

$\therefore$ Length of the remaining piece

$= 150\frac{1}{4} - 40\frac{1}{5}$

$= \frac{150\times 4+1}{4} - \frac{40\times 5+1}{5}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{601}{4} - \frac{201}{5}$

$= \frac{601\times 5}{4\times 5} - \frac{201\times 4}{5\times 4}$ [$\because$ LCM of 4 and 5 is 20, so convert each of the given fraction to an equivalent fraction with denominator 20.]

$= \frac{3005}{20} - \frac{804}{20} = \frac{2201}{20} = 110\frac{1}{20}$ cm [$\because$ 20) 2201 (110, 20, 20, 1]

So, the length of the remaining piece is $110\frac{1}{20}$ cm.

Question 119:

Nasir travelled 3 1/2 km in a bus and then walked 1 1/8 km to reach a town.

How much did he travel to reach the town?

Solution:

Given, distance travelled by bus = $3\frac{1}{2}$ km

and distance walked by Nasir to reach town = $1\frac{1}{8}$ km

In order to find the total distance travelled by Nasir to reach the town we will add $3\frac{1}{2}$ and $1\frac{1}{8}$.

$\therefore$ Total distance = $3\frac{1}{2} + 1\frac{1}{8}$

$= \frac{3\times2+1}{2} + \frac{1\times8+1}{8}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{7}{2} + \frac{9}{8} = \frac{7\times4}{2\times4} + \frac{9\times1}{8\times1}$ [$\because$ LCM of 2 and 8 is 8, so convert each of the given fraction to an equivalent fraction with denominator 8.]

$= \frac{28}{8} + \frac{9}{8} = \frac{28+9}{8} = \frac{37}{8} = 4\frac{5}{8}$ km [$\because$ 8) 37 (4, 32, 5]

So, total distance travelled by Nasir to reach the town is $4\frac{5}{8}$ km.

Question 120:

The fish caught by Neetu was of weight 3 3/4 kg and the fish caught by Narendra was of weight 2 1/2 kg.

How much did Neetu's fish weight than that of Narendra?

Solution:

Given, weight of fish caught by Neetu = $3\frac{3}{4}$ kg

and weight of fish caught by Narendra = $2\frac{1}{2}$ kg

In order to find how much Neetu fish weight more, we will find the difference between the weight of fishes.

$\therefore$ Difference between their weights = $3\frac{3}{4}$ kg $- 2\frac{1}{2}$ kg

$= \frac{3\times4+3}{4} - \frac{2\times2+1}{2}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{15}{4} - \frac{5}{2}$

$= \frac{15\times1}{4\times1} - \frac{5\times2}{2\times2}$ [$\because$ LCM of 4 and 2 is 4, so convert each of the given fraction to an equivalent fraction with denominator 4.]

$= \frac{15}{4} - \frac{10}{4} = \frac{15-10}{4} = \frac{5}{4} = 1\frac{1}{4}$ kg [$\because$ 4) 5 (1, 4, 1]

So, Neetu's fish weight $1\frac{1}{4}$ kg more than that of Narendra.

Question 121:

Neelam's father needs 1 3/4 m of cloth for the skirt of Neelam's new dress and 1/2 m for the scarf. How much cloth must he buy in all?

Solution:

Given, cloth required for skirt $= 1\frac{3}{4}$ m

and cloth required for scarf $= \frac{1}{2}$ m

In order to find the total cloth, Neelam's father must buy, we will add $1\frac{3}{4}$ and $\frac{1}{2}$.

$\therefore$ Total cloth $= 1\frac{3}{4} + \frac{1}{2}$

$= \frac{1\times 4+3}{4} + \frac{1}{2}$ $\left[\because \text{Mixed fraction} = \text{Improper fraction} = \frac{\text{Whole number} \times \text{Denominator} + \text{Numerator}}{\text{Denominator}}\right]$

$= \frac{7}{4} + \frac{1}{2}$

$= \frac{7}{4} + \frac{1\times 2}{2\times 2}$ [$\because$ LCM of 2 and 4 is 4, so convert each of the given fraction to an equivalent fraction with denominator 4.]

$= \frac{7}{4} + \frac{2}{4} = \frac{7+2}{4} = \frac{9}{4} = 2\frac{1}{4}$ m [$\because$ 4) 9 (2, 8, 1]

So, he must buy $2\frac{1}{4}$ m cloth.

Question 122:

What is wrong in the following additions?

(a) $8\frac{1}{2} = 8\frac{2}{4}$

$+\ 4\frac{1}{4} = 4\frac{1}{4}$

$= 12\frac{3}{8}$

(b) $6\frac{1}{2}$

$+\ 2\frac{1}{4}$

$= 8\frac{2}{6} = 8\frac{1}{3}$

Solution:

(a) On observing the sum, we find that the denominators of like fractions are also added which is wrong. So, the correct answer will be 12 3/4.

(b) On observing the sum, we find that the fractions have different denominators which could not be added directly. For adding fractions with different denominators we have to convert them into like fractions.

Question 123:

Which one is greater?

1 m 40 cm + 60 cm or 2.6 m

Solution:

In order to find which of the following is greater, we will first convert them into same unit and then compare.

So, 1 m + 40 cm + 60 cm

$= 1\text{m} + \frac{40}{100}\text{m} + \frac{60}{100}\text{m}$ [$\because$ 1 m = 100 cm]

$= 1\text{m} + 0.40\text{m} + 0.60\text{m}$

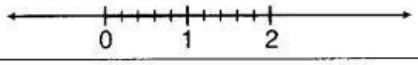
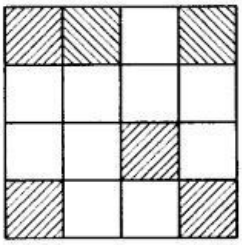
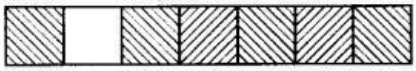
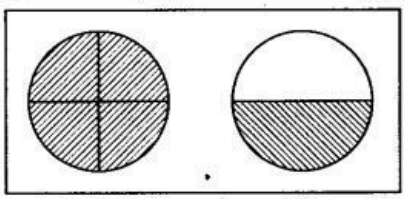
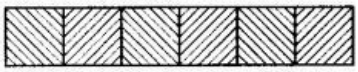
$= 2.00\text{m}$

Clearly, $2\text{m} < 2.6\text{m}$

Hence, 2.6 m is greater than 1 m 40 cm + 60 cm.

Question 124:

Match the fractions of Column I with the shaded or marked portion of figures of Column II

Column I		Column II	
(i)	$\frac{6}{8}$	(a)	
(ii)	$\frac{6}{10}$	(b)	
(iii)	$\frac{6}{6}$	(c)	
(iv)	$\frac{6}{16}$	(d)	
(v)	$\frac{6}{7}$	(e)	

Solution:

On observing the figures given in Column II, we get

(a) Line is divided into 10 equal parts out of which 6 parts are shaded.

The fraction of shaded portion to the total parts = 6/10

(b) Square is divided into 16 equal parts out of which 6 parts are shaded.

The fraction of shaded portion to the total parts = 6/16

(c) Rectangle is divided into 7 equal parts out of which 6 parts are shaded.

The fraction of shaded portion to the total parts = 6/7

(d) Each of the two circle is divided in 4 equal parts out of which 4 parts of one circle and 2 parts of second circle are shaded.

The fraction of shaded portion to the total parts = 4+2 / 4+4 = 6/8

(e) Rectangle is divided into 6 equal parts out of which 6 are shaded.

The fraction of shaded portion to the total parts =

Hence, the (i) ->d, (ii) -> a, (iii) ->e, (iv) -> b, (v) -> c

Question 125:

Find the fraction that represents the number of natural numbers to total numbers in the collection 0,1, 2, 3, 4, 5. What fraction will it be for whole number?

Solution:

Given collection is 0, 1, 2, 3, 4, 5.

Natural numbers = 1, 2, 3, 4, 5

The fraction of natural numbers to the collection =5/6

Now, whole numbers = 0,1,2, 3, 4, 5, 6

The fraction of whole numbers to the collection = 6/6 = 1/1

Question 126:

Write the fraction representing the total number of natural numbers in the collection of numbers -3, -2,-1, 0,1, 2, 3. What fraction will it be for whole numbers? What fraction will it be for integers?

Solution:

Given collection is -3 -2,-1, 0,1,2, 3.

Natural numbers = 1,2, 3

The fraction of natural numbers to the collection = 3/7

Now, whole numbers = 0,1,2,3

The fraction of whole numbers to the collection = 4/7

and integers = – 3, -2, -1, 0,1,2, 3

The fraction of integers to the collection 7/7 = 1/1

Question 127:

Write a pair of fractions whose sum is 7/11 and difference is 2/11.

Solution:

Let a and b be the pair of fractions whose sum is $\frac{7}{11}$ and difference is $\frac{2}{11}$, then

$$a + b = \frac{7}{11} \quad \ldots(i)$$

and

$$a - b = \frac{2}{11} \quad \ldots(ii)$$

On adding Eqs. (i) and (ii), we get

$$(a + b) + (a - b) = \frac{7}{11} + \frac{2}{11} \Rightarrow a + b + a - b = \frac{7 + 2}{11}$$

$$\Rightarrow \quad 2a = \frac{9}{11} \Rightarrow a = \frac{9}{11 \times 2} = \frac{9}{22}$$

On substituting the value of a in Eq. (i), we get

$$\frac{9}{22} + b = \frac{7}{11} \Rightarrow b = \frac{7}{11} - \frac{9}{22}$$

$$\Rightarrow \quad b = \frac{7 \times 2}{11 \times 2} - \frac{9}{22}$$

[$\because$ LCM of 11 and 22 is 22, so convert each of the given fraction to an equivalent fraction with denominator 22.]

$$\Rightarrow \quad b = \frac{14}{22} - \frac{9}{22}$$

$$\Rightarrow \quad b = \frac{14 - 9}{22} = \frac{5}{22}$$

So, $\frac{9}{22}$ and $\frac{5}{22}$ is a pair of fractions, whose sum is $\frac{7}{11}$ and difference is $\frac{2}{11}$.

Question 128:

What fraction of straight angle is a right angle.

Solution:

We know that, measures of right angle and straight angle are 90° and 180°

Now, the fraction of right angle to the straight angle $= \frac{90°}{180°}$

$$= \frac{90 \div 90}{180 \div 90} \quad [\because \text{HCF of 90 and 180 is 90}]$$

$$= \frac{1}{2}$$

Question 129:

Put the right card in the right bag.

Cards

(i) $\frac{3}{7}$

(ii) $\frac{4}{4}$

(iii) $\frac{9}{8}$

(iv) $\frac{8}{9}$

(v) $\frac{5}{6}$

(vi) $\frac{6}{11}$

(vii) $\frac{18}{18}$

(viii) $\frac{19}{25}$

(ix) $\frac{2}{3}$

(x) $\frac{13}{17}$

Bags

Solution:

We know that, a fraction is of the form $\frac{p}{q}$, where p is called the **Numerator** (N) and q is called the **Denominator** (D). Then,

(a) If $\frac{p}{q}$ is a proper fraction, i.e. $p < q$. then the value of fraction is always less than 1.

(b) If $\frac{p}{q}$ is an improper fraction, i.e. $p > q$, then the value of fraction is always greater than 1.

(c) If $\frac{p}{q}$ is a fraction in which $p = q$, then the value of fraction is always equal to 1.

(i) $\frac{3}{7}$

Here, $3 < 7$, i.e. $N < D$. So, the value of fraction is less than 1.

(ii) $\frac{4}{4}$

Here, $4 = 4$, i.e. $N = D$. So, the value of fraction is equal to 1.

(iii) $\frac{9}{8}$

Here, $9 > 8$, i.e. $N > D$. So, the value of fraction is greater than 1.

(iv) $\frac{8}{9}$

Here, $8 < 9$, i.e. $N < D$. So, the value of fraction is less than 1.

(v) $\frac{5}{6}$

Here, $5 < 6$, i.e. $N < D$. So, the value of fraction is less than 1.

(vi) $\frac{6}{11}$

Here, $6 < 11$, i.e. $N < D$. So, the value of fraction is less than 1.

(vii) $\frac{18}{18}$

Here, $19 < 25$, i.e. $N < D$. So, the value of fraction is less than 1.

(ix) $\frac{2}{3}$

Here, $2 < 3$, i.e. $N < D$. So, the value of fraction is less than 1.

(x) $\frac{13}{17}$

Here, $13 < 17$, i.e. $N < D$. So, the value of fraction is less than 1