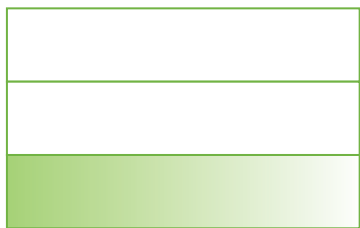# 8 Fractional Numbers

Let find the equivalent fractions, we multiply or divide the numerator and denominator of a fraction by the same number.

A fraction is a part of a whole. The numbers $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{2}{3}$, $\frac{5}{6}$, $\frac{6}{7}$, $\frac{7}{8}$, etc., are called fr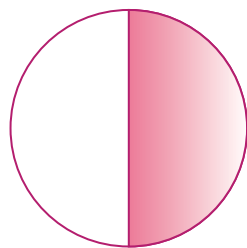actional numbers. A fraction represents an equal part or parts of a whole or a group. The $\frac{1}{2}$ fraction means an object is divided into two equal parts and one part is taken. Similarly, the fraction $\frac{3}{4}$ represents that an object is divided into 4 equal parts out of which 3 parts are taken. Each fraction has two numbers which are separated by a line called line bar. The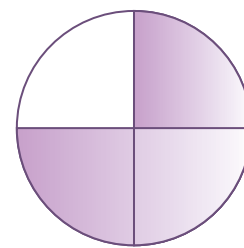 number written above the line bar is called numerator and the number below the line bar is called denominator. For example, in the fraction $\frac{7}{8}$, 7 is numerator and 8 is denominator.

Represents fraction $\frac{1}{3}$ Represents fraction $\frac{1}{2}$ Represents fraction $\frac{3}{4}$

Equivalent Fractions

Fractions are said to be equivalent fractions if all of them represent the same fractional numbers. If the numerator and the denominator of a fraction is multiplied by the same number (other than zero), the equivalent fraction is obtained.

For Example : $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, ... are equivalent fractions.

Example I   :   Write the equivalent fraction to $\frac{1}{3}$

Solution : $\dfrac{1}{3} = \dfrac{1 \times 2}{3 \times 2} = \dfrac{1 \times 3}{3 \times 3} = \dfrac{1 \times 4}{3 \times 4} = \dfrac{1 \times 5}{3 \times 5} = \dfrac{1 \times 6}{3 \times 6} = \dots$

$\dfrac{1}{3} = \dfrac{2}{6} = \dfrac{3}{9} = \dfrac{4}{12} = \dfrac{5}{15} = \dfrac{6}{18} = \dots$

Therefore, equivalent fractions to $\dfrac{1}{3}$ are $\dfrac{2}{6}, \dfrac{3}{9}, \dfrac{4}{12}, \dfrac{5}{15}, \dfrac{6}{18} \dots$

Example II : Write the next four equivalent fractions to $\dfrac{3}{7}$.

Solution : $\dfrac{3}{7} = \dfrac{3 \times 2}{7 \times 2} = \dfrac{3 \times 3}{7 \times 3} = \dfrac{3 \times 4}{7 \times 4} = \dfrac{3 \times 5}{7 \times 5}$

$\dfrac{3}{7} = \dfrac{6}{14} = \dfrac{9}{21} = \dfrac{12}{28} = \dfrac{15}{35}.$

Therefore, the next four equivalent fractions to $\dfrac{3}{7}$ are

$\dfrac{6}{14}, \dfrac{9}{21}, \dfrac{12}{28}, \dfrac{15}{35}$

Finding Equivalent Fraction with Given Numerator or Denominator

How to find an equivalent fraction with a given numerator or denominator?

For Example : $\dfrac{4}{5} = \dfrac{16}{\square}$, numerators 4 and 16 $\Rightarrow 16 \div 4 = 4$,

$\dfrac{4}{5} = \dfrac{4 \times 4}{5 \times 4}$ or $\dfrac{4}{5} = \dfrac{16}{20}$

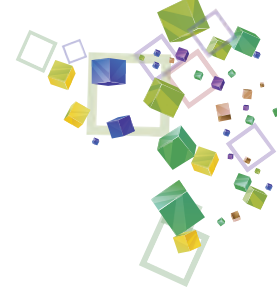$\dfrac{3}{4} = \dfrac{\square}{16}$, denominators 4 and 16 $\Rightarrow 16 \div 4 = 4.$

So, $\dfrac{3}{4} = \dfrac{3 \times 4}{4 \times 4}$ or $\dfrac{3}{4} = \dfrac{12}{16}.$

To find an equivalent fraction with a higher numerator or denominator, multiply the numerator and denominator of given fraction by the same number (other than zero).

For Example : $\dfrac{45}{75} = \dfrac{3}{\square}$, numerators 45 and 3 $\Rightarrow 45 \div 3 = 15.$

So, $\dfrac{45 \div 15}{75 \div 15}$ or $\dfrac{45}{75} = \dfrac{3}{5}.$

$$\frac{18}{24} = \frac{\square}{4}, \text{ denominators 24 and 4} \Rightarrow 24 \div 4 = 6$$

$$\text{So, } \frac{18 \div 6}{24 \div 6} \text{ or } \frac{18}{24} = \frac{3}{4}.$$

To find an equivalent fraction with lowest numerator or denominator divide the numerator and denominator of given fraction by same number (other than zero).

Example III : Find an equivalent fraction of $\frac{2}{5}$ with numerator 8.

Solution : $\frac{2}{5} = \frac{8}{\square}$

For an equivalent fraction with higher numerator, multiply the numerator and denominator of the given fraction $\left(\frac{2}{5}\right)$ by same number. Then, $8 \div 2 = 4$.

$$\text{So, } \frac{2}{5} = \frac{2 \times 4}{5 \times 4} = \frac{8}{20}.$$

$$\text{Therefore, } \frac{2}{5} = \frac{8}{20}.$$

EXERCISE 8.1

1. Write the next four equivalent fractions.

a. $\frac{1}{3}, \frac{2}{5}, \frac{3}{7},$ ...., ..., ..., ...

b. $\frac{1}{3}, \frac{2}{6}, \frac{3}{9},$ ...., ..., ..., ...

c. $\frac{1}{4}, \frac{2}{8}, \frac{3}{12},$ ...., ..., ..., ...

d. $\frac{1}{6}, \frac{2}{12}, \frac{3}{18},$ ...., ..., ..., ...

2. Write the first five equivalent fractions to each of the following.

a. $\frac{1}{5}$ b. $\frac{2}{3}$ c. $\frac{3}{4}$ d. $\frac{2}{5}$

3. **Find an equivalent fraction of $\dfrac{36}{48}$ with...**

    a.   numerator 3   b.   denominator 8

    c.   numerator 9   d.   denominator 16

4. **Fill in the missing numerals.**

    a. $\dfrac{1}{4} = \dfrac{2}{\square}$ b. $\dfrac{1}{6} = \dfrac{5}{\square}$ c. $\dfrac{3}{7} = \dfrac{15}{\square}$ d. $\dfrac{5}{12} = \dfrac{\square}{72}$

    e. $\dfrac{4}{5} = \dfrac{12}{\square}$ f. $\dfrac{1}{3} = \dfrac{\square}{18}$ g. $\dfrac{8}{9} = \dfrac{32}{\square}$ h. $\dfrac{2}{5} = \dfrac{\square}{30}$

Whether or not the Two Fractions are Equivalent

Two fractions are equivalent if their cross product are same.

For Example :

$$\dfrac{3}{4} \times \dfrac{9}{12} \longrightarrow \begin{array}{l} 3 \times 12 = 36 \\ 4 \times 9 = 36 \end{array} \Rightarrow \dfrac{3}{4} \text{ is equivalent to } \dfrac{9}{12}.$$

$$\dfrac{3}{4} \times \dfrac{6}{8} \longrightarrow \begin{array}{l} 3 \times 8 = 24 \\ 4 \times 6 = 24 \end{array} \Rightarrow \dfrac{3}{4} \text{ is equivalent to } \dfrac{6}{8}.$$

$$\dfrac{4}{5} \times \dfrac{16}{20} \longrightarrow \begin{array}{l} 4 \times 20 = 80 \\ 5 \times 16 = 80 \end{array} \Rightarrow \dfrac{4}{5} \text{ is equivalent to } \dfrac{16}{20}.$$

Example IV : Find if $\dfrac{2}{3}$ and $\dfrac{4}{6}$ are equivalent fractions or not.

Solution : Two fractions are equivalent if their cross product are same.

$$\dfrac{2}{3} \times \dfrac{4}{6} \longrightarrow \begin{array}{l} 2 \times 6 = 12 \\ 3 \times 4 = 12 \end{array} \Rightarrow \dfrac{2}{3} \text{ is equivalent to } \dfrac{4}{6}.$$

**Example V** : Are $\dfrac{2}{9}$ and $\dfrac{3}{5}$ equivalent fractions?

Solution : $\dfrac{2}{9} \times \dfrac{3}{5} \longrightarrow \begin{array}{l} 2 \times 5 = 10 \\ 9 \times 3 = 27 \end{array} \Rightarrow \dfrac{2}{9} \text{ is not equivalent to } \dfrac{3}{5}.$

Fraction in the Lowest Term

A fraction is said to be in its lowest term or in its simplest form if the common factor of the numerator and denominator is 1. To reduce a fraction in its lowest term, divide the numerator and denominator of the fraction by their HCF or by their common factors.
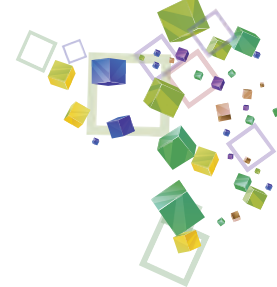
Example VI : Is the fraction $\dfrac{2}{8}$ in its lowest term?

Solution : Factors of the numerator 2   = 1, 2

           Factors of the denominator 8   = 1, 2, 4, 8

           The common factors of 2 and 8 = 1, 2

           Therefore, $\dfrac{2}{8}$ is not in its lowest term.

How to Reduce a Fraction in its Lowest Form

To reduce the fraction in its lowest form, find the HCF of numerator and denominator of the fraction and divide them by their HCF.

Example VII : Reduce $\dfrac{9}{12}$ to its lowest form.

Solution : Find the HCF of numerator 9 and denominator 12 by prime factorization.

3	9
3	3
	1

2	12
2	6
3	3
	1

           The prime factors of   9   =   3 × 3.

           The prime factors of   12   = 2 × 2 × 3.

           Therefore, HCF of 9 and 12 is 3.

           Then, $\dfrac{9}{12} = \dfrac{9 \div 3}{12 \div 3} = \dfrac{3}{4}$.

           Therefore, $\dfrac{3}{4}$ is the lowest form of $\dfrac{9}{12}$.

EXERCISE 8.2

1. **Are the following fractions equivalent? Write Yes or No in the answers.**

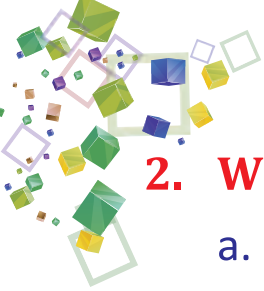a. $\dfrac{2}{3}$ and $\dfrac{3}{4}$ b. $\dfrac{4}{9}$ and $\dfrac{7}{8}$ c. $\dfrac{6}{10}$ and $\dfrac{9}{15}$

d. $\dfrac{2}{10}$ and $\dfrac{3}{15}$ e. $\dfrac{3}{5}$ and $\dfrac{12}{20}$ f. $\dfrac{4}{10}$ and $\dfrac{2}{5}$

2. Which of the following is in its lowest form?

a. $\dfrac{1}{3}$ b. $\dfrac{5}{2}$ c. $\dfrac{2}{7}$ d. $\dfrac{7}{10}$ e. $\dfrac{6}{19}$

f. $\dfrac{8}{10}$ g. $\dfrac{6}{9}$ h. $\dfrac{9}{12}$ i. $\dfrac{12}{17}$ j. $\dfrac{21}{35}$

3. Reduce the following fractions in their simplest form.

a. $\dfrac{12}{20}$ b. $\dfrac{16}{48}$ c. $\dfrac{30}{60}$ d. $\dfrac{45}{54}$ e. $\dfrac{18}{45}$

f. $\dfrac{27}{36}$ g. $\dfrac{25}{45}$ h. $\dfrac{18}{48}$ i. $\dfrac{28}{42}$ j. $\dfrac{75}{80}$

Types of Fractions

Like Fractions	:	Fractions having the same denominators are called like fractions.
For Example	:	$\dfrac{1}{11}, \dfrac{2}{11}, \dfrac{3}{11}, \dfrac{4}{11}, \dfrac{5}{11}$ etc., are like fractions.
Unlike Fractions	:	Fractions having different denominators are called unlike fractions.
For Example	:	$\dfrac{3}{8}, \dfrac{2}{9}, \dfrac{1}{2}, \dfrac{4}{13}$ etc., are unlike fractions.
Unit Fractions	:	Fractions with numerator 1 are called unit fractions.
For Example	:	$\dfrac{1}{6}, \dfrac{1}{7}, \dfrac{1}{8}, \dfrac{1}{12}, \dfrac{1}{18}, \dfrac{1}{4}$ etc., are unit fractions.
Proper Fractions	:	Fractions with numerators smaller than the denominators are called proper fractions.
For Example	:	$\dfrac{1}{15}, \dfrac{3}{18}, \dfrac{4}{5}, \dfrac{5}{9}, \dfrac{3}{7}, \dfrac{5}{19}$ etc., are proper fractions.
Improper Fractions	:	Fractions with numerators greater than or equal to denominators are called improper fractions.
For Example	:	$\dfrac{5}{2}, \dfrac{4}{3}, \dfrac{8}{3}, \dfrac{10}{10}, \dfrac{15}{4}, \dfrac{18}{18}$ etc., are improper fractions.

Mixed Numeral : A mixed numeral is a combination of a whole number and a proper fractional number.

Or, when an improper fraction is written as a combination of a whole and a proper fraction then it is called a mixed numeral.

For Example : $5\frac{1}{4}$, $6\frac{3}{5}$, $1\frac{2}{3}$, $2\frac{1}{4}$ etc., are mixed numerals.

EXERCISE 8.3

1. Which groups are of like fractions?

a. $\frac{1}{3}$, $\frac{2}{6}$, $\frac{4}{12}$ and $\frac{8}{24}$ b. $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{3}$ and $\frac{1}{2}$ c. $\frac{1}{7}$, $\frac{3}{7}$, $\frac{4}{7}$ and $\frac{2}{7}$

d. $\frac{2}{5}$, $\frac{4}{5}$, 1 and $\frac{3}{5}$ e. $\frac{1}{3}$, $\frac{2}{5}$, $\frac{3}{5}$ and $\frac{4}{7}$ f. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{5}$

2. Which of the following are groups of unlike fractions?

a. $\frac{7}{9}$, $\frac{6}{9}$, $\frac{5}{9}$ and $\frac{4}{9}$ b. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{5}$

c. $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ and 1   d. $\frac{1}{2}$, $\frac{3}{4}$, $\frac{4}{5}$ and $\frac{2}{7}$

3. Which of the following are proper fractions?

a. $\frac{5}{6}$ b. $\frac{3}{9}$ c. $\frac{4}{3}$

d. $\frac{9}{8}$ e. $\frac{9}{10}$ f. $\frac{3}{5}$

4. Which of the following are improper fractions?

a. $\frac{5}{5}$ b. $\frac{5}{7}$ c. $\frac{4}{3}$

d. $\frac{13}{7}$ e. $\frac{7}{7}$ f. $\frac{5}{3}$

5. Which of the following are unit fractions?

a. $\frac{9}{8}$ b. $\frac{5}{1}$ c. $\frac{3}{3}$ d. $\frac{8}{9}$ e. $\frac{1}{7}$ f. $\frac{1}{5}$

6. Which of the following are mixed numerals?

a. $1\frac{1}{5}$ b. $\frac{5}{21}$ c. $\frac{7}{12}$ d. $3\frac{1}{2}$ e. $2\frac{3}{4}$
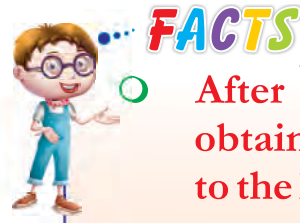
Addition & Subtraction of Like Fractions

Addition of like fractions

To add like fractions, we simply add the numerators and write the sum over the same denominator.

FACTS

After addition, the fraction obtained should be reduced to the lowest terms.

Example VIII: Rohit reads $\dfrac{3}{5}$ of a book on Saturday and $\dfrac{1}{5}$ of the book on Sunday. How much of the book has Rohit read on both days?

Solution : On Saturday, Rohit reads $\dfrac{3}{5}$ of the book. On Sunday, Rohit reads $\dfrac{1}{5}$ of the book.

Total book read $= \dfrac{3}{5} + \dfrac{1}{5} = \dfrac{3+1}{5} = \dfrac{4}{5}$ → Numerators are added.
→ Denominator is the same.

So, Rohit reads $\dfrac{4}{5}$ of the book in both the days.

Example IX : Add $\dfrac{4}{11}$ and $\dfrac{8}{11}$ and express the answer as a mixed number.

Solution : $\dfrac{4}{11} + \dfrac{8}{11} = \dfrac{4+8}{11}$

$= \dfrac{12}{11} = 1\dfrac{1}{11}$

$$11\overline{)12} \\ \underline{-11} \\ 1$$

Hence, $\dfrac{4}{11} + \dfrac{8}{11} = \dfrac{12}{11}$ or $1\dfrac{1}{11}$.

Subtraction of Like Fractions

To subtract like fractions, the same method is followed as in addition of like fractions. The numerators are subtracted and written over the same denominator.
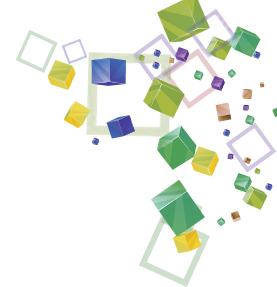
Example X : Find $\dfrac{11}{19} - \dfrac{6}{19}$.

Solution : $\dfrac{11}{19} - \dfrac{6}{19} = \dfrac{11-6}{19} = \dfrac{5}{19}$

$= \dfrac{5}{19}$ $\longrightarrow$ Numerators are subtracted.
$\longrightarrow$ Denominator is the same.

Example XI : Vicky was given $\dfrac{7}{9}$ of a pizza. He gave away $\dfrac{2}{9}$ of the pizza to his brother. How much pizza is left with him?

Solution : To get the answer, subtract $\dfrac{2}{9}$ from $\dfrac{7}{9}$.

$\dfrac{7}{9} - \dfrac{2}{9} = \dfrac{7-2}{9} = \dfrac{5}{9}$

So, Vicky has $\dfrac{5}{9}$ of the pizza now.

E X E R C I S E 8.4

1. Add the following and reduce the sum to the lowest terms.

a. $\dfrac{2}{9} + \dfrac{4}{9}$ 　　 b. $\dfrac{6}{5} + \dfrac{2}{5}$ 　　 c. $\dfrac{7}{12} + \dfrac{3}{12}$ 　　 d. $\dfrac{5}{13} + \dfrac{9}{13}$ 　　 e. $\dfrac{8}{15} + \dfrac{4}{15}$

2. Subtract the following fractions and reduce to the lowest terms.

a. $\dfrac{4}{12} - \dfrac{2}{12}$ 　　 b. $\dfrac{6}{14} - \dfrac{4}{14}$ 　　 c. $\dfrac{9}{16} - \dfrac{5}{16}$ 　　 d. $\dfrac{11}{12} - \dfrac{2}{12}$ 　　 e. $\dfrac{12}{16} - \dfrac{8}{16}$

3. Shikhar ate $\dfrac{1}{2}$ of a cake, and then ate another $\dfrac{1}{2}$. How much cake has he eaten altogether?

4. Mother gave $\dfrac{5}{8}$ of a pizza to Manisha and $\dfrac{3}{8}$ to Ayera. Who has eaten more pizza and how much more?

5. Disha has completed $\dfrac{3}{4}$ of her homework. How much work is left?

Addition & Subtraction of Unlike Fractions

Addition of unlike fractions

To add unlike fractions, first the denominators of the fractions are made the

same e.g. fractions are converted into like fractions, and then they are added as like fractions.

Example XII : Sanchit ate $\dfrac{1}{2}$ of a cake and Vaibhav ate $\dfrac{3}{4}$ of a cake. How much cake did they eat together?

Solution : Total cake eaten by them is $\dfrac{1}{2}+\dfrac{3}{4}$.

Converting the given fractions into like fractions, we get

$$\dfrac{1}{2}=\dfrac{1\times 2}{2\times 2}=\dfrac{2}{4}\text{ and }\dfrac{3}{4}=\dfrac{3\times 1}{4\times 1}=\dfrac{3}{4}.$$

Adding like fractions, we get $\dfrac{2}{4}+\dfrac{3}{4}=\dfrac{2+3}{4}=\dfrac{5}{4}$.

Expressing $\dfrac{5}{4}$ as a mixed number, we get $1\dfrac{1}{4}$.

So, Sanchit and Vaibhav together ate $1\dfrac{1}{4}$ cake.

Addition of mixed numbers

To add mixed numbers, we first covert them into improper fractions and then convert the improper fractions into like fractions. The like fractions so obtained are added as usual.

Example XIII: Add $1\dfrac{2}{3}$ and $2\dfrac{1}{2}$.

Solution : $1\dfrac{2}{3}+2\dfrac{1}{2}=\dfrac{5}{3}+\dfrac{5}{2}$ (On changing mixed numbers into improper fractions)

Now, convert the fractions into like fractions as follows:

$$\dfrac{5}{3}=\dfrac{5\times 2}{3\times 2}=\dfrac{10}{6}\text{ and }\dfrac{5}{2}=\dfrac{5\times 3}{2\times 3}=\dfrac{15}{6}$$
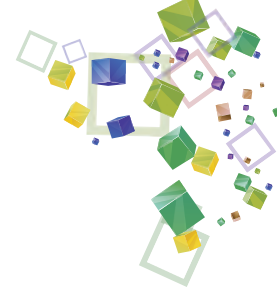
Finally, add $\dfrac{10}{6}$ and $\dfrac{15}{6}$.

$$\dfrac{10}{6}+\dfrac{15}{6}=\dfrac{10+15}{6}$$

$$=\dfrac{25}{6}=4\dfrac{1}{6}$$

Hence, $1\dfrac{2}{3}+2\dfrac{1}{2}=4\dfrac{1}{6}$.

EXERCISE 8.5

1. Add the following and reduce to the lowest terms.

a. $\dfrac{7}{10}+\dfrac{3}{5}$ b. $\dfrac{1}{3}+\dfrac{4}{9}$ c. $\dfrac{2}{3}+\dfrac{5}{6}$ d. $\dfrac{5}{8}+\dfrac{1}{2}$ e. $\dfrac{7}{8}+\dfrac{3}{4}$

2. Subtract the following and reduce to the lowest terms.

a. $\dfrac{3}{4}-\dfrac{1}{2}$ b. $\dfrac{1}{4}-\dfrac{1}{8}$ c. $\dfrac{3}{16}-\dfrac{1}{8}$ d. $\dfrac{7}{10}-\dfrac{3}{5}$ e. $\dfrac{4}{9}-\dfrac{1}{3}$

3. Check the symbol and perform the operation in each of the following.

a. $\dfrac{7}{12}+\dfrac{3}{12}$ b. $3\dfrac{1}{4}-1\dfrac{1}{2}$ c. $2\dfrac{3}{4}-1\dfrac{1}{2}$ d. $2\dfrac{1}{6}+1\dfrac{1}{3}$ e. $1\dfrac{1}{2}+2\dfrac{3}{4}$

4. Rohan walked $1\dfrac{1}{2}$ km to his school. Then, he walked $\dfrac{3}{4}$ km to the library. How much did he walk altogether?

5. Rekha bought 2 kg sugar. She used $1\dfrac{1}{4}$ kg sugar to bake a cake. How much sugar is left?

6. Vinay reads $\dfrac{1}{6}$ of a storybook on the first day and $\dfrac{1}{3}$ the second day. How much of the book has been read?

POINTS TO REMEMBER

❖ A fraction shows an equal part or parts of a whole or a group.

❖ A fraction has two parts–the numerator and the denominator, separated by a dividing line.

❖ Two or more fractions that represent the same amount (fractional number) are called equivalent fractions.

❖ To reduce a fraction to the lowest terms, divide the numerator and denominator by their highest common factor (HCF).

❖ When the numerator divides the denominator without leaving a remainder, the numerator is the HCF and the denominator is the LCM.

❖ Addition and subtraction of unlike fractions is done by finding the like fractions of the given fractions.
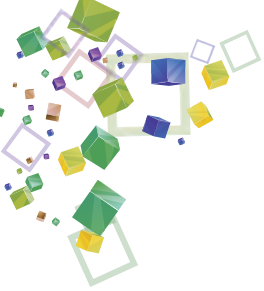
1. **Multiple Choice Questions (MCQs)**
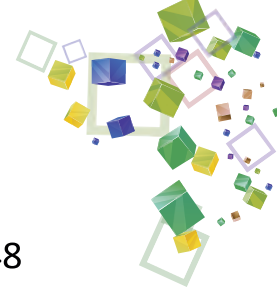   **Tick (✓) the correct options:**

   a. $\frac{5}{8}$ of 32 is equal to....................... .

   (i) 10   (ii) 20

   (iii) 40   (iv) 50

   b. Which of the following is an equivalent fraction to $\frac{4}{5}$?

   (i) $\frac{12}{10}$ (ii) $\frac{8}{15}$

   (iii) $\frac{8}{10}$ (iv) $\frac{22}{25}$

   c. $2\frac{3}{4} - 1\frac{1}{3}$ is....................... .

   (i) 1   (ii) $\frac{5}{12}$

   (iii) $2\frac{5}{12}$ (iv) $1\frac{5}{12}$

   d. $\frac{9}{21}$ written in lowest term is....................... .

   (i) $\frac{3}{7}$ (ii) $\frac{8}{42}$

   (iii) $\frac{1}{7}$ (iv) none of these

   e. $\frac{4}{5}$ of 50 is equal to....................... .

   (i) 30   (ii) 40   (iii) 50   (iv) 60

2. **Identify the proper fractions from the following.**

   a. $\frac{7}{9}$ b. $\frac{2}{3}$ c. $\frac{4}{3}$ d. $\frac{7}{5}$ e. $\frac{6}{7}$ f. $\frac{1}{7}$ g. $\frac{9}{4}$

3. **Evaluate the following.**

   a. $\dfrac{3}{5}$ of 20   b. $\dfrac{7}{8}$ of 56   c. $\dfrac{8}{9}$ of 72   d. $\dfrac{5}{6}$ of 48

4. **Find an equivalent fraction of each of the following.**

   a. $\dfrac{12}{20}$ b. $\dfrac{20}{35}$ c. $\dfrac{18}{21}$ d. $\dfrac{5}{6}$ e. $\dfrac{3}{4}$ f. $\dfrac{7}{8}$

5. **Build equivalent fractions to the 5th place for each of the following.**

   a. $\dfrac{3}{7}$, ..., ..., ..., ... , ...

   b. $\dfrac{5}{13}$, ..., ..., ..., ... , ...

6. **Reduce each of the following fractions to its lowest terms.**

   a. $\dfrac{24}{54}$ b. $\dfrac{15}{39}$ c. $\dfrac{12}{72}$ d. $\dfrac{35}{60}$

7. **Add or subtract and reduce to the lowest terms.**

   a. $\dfrac{11}{15}+\dfrac{4}{15}$ b. $\dfrac{1}{3}+1\dfrac{1}{3}$ c. $\dfrac{6}{7}+\dfrac{5}{7}$ d. $\dfrac{2}{3}+\dfrac{5}{6}$

   e. $\dfrac{8}{9}-\dfrac{5}{9}$ f. $\dfrac{9}{10}-\dfrac{3}{10}$ g. $\dfrac{11}{12}-\dfrac{3}{4}$ h. $\dfrac{5}{8}-\dfrac{1}{2}$

8. Sakshi received a huge bunch of flowers from her friend. She counted 84 flowers in all. $\dfrac{2}{3}$ of the flowers were roses. How many roses were there in the bouquet?

9. A packet has 75 sheets of paper. Malika uses $\dfrac{3}{5}$ of the sheets. How many sheets has she used?

10. During the class election, Sidhant got $\dfrac{1}{7}$ of the 42 votes polled. How many votes did Sidhant get?

HOTS

If Harsh gets ₹ 100 to spend in a week and he spends ₹ 75 only, what part of money does he save?

If there are 25 girls and 35 boys in a class, what fraction of the boys is in the class?

Objective : To understand the order of fractions.

Materials : A white sheet of paper, glazed paper, a pair of scissors, pencil, scale and fevicol.

Fraction Strips

1							
$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

Presentation :

❖ Cut out 4 equal strips of glazed paper of any colour of length 12 cm and width 3 cm.

❖ Paste one strip on the sheet of paper.

❖ Take the second strip. Fold it neatly into two equal parts. Mark the fold line and paste it below the first strip. Mark $\frac{1}{2}$ for each part.

❖ Now take the third strip. Fold it into four equal parts. Mark the folds. Paste it below the second strip. Write $\frac{1}{4}$ for each part.

❖ Then take the fourth strip and fold it into 8 equal parts. Mark the folds. Paste the strip below the third strip. Write $\frac{1}{8}$ for each part.

a. What happens when the number in the denominator gets bigger? ....

b. What is a unit fraction? ....

c. Which is bigger $\frac{1}{4}$ or $\frac{1}{8}$? ....

d. If you get 2 shares of $\frac{1}{4}$ or one share of $\frac{1}{2}$, which would be more? ....

e. How many $\frac{1}{8}$ parts will make $\frac{1}{2}$? ....