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Fractions and Decimals

The number of the a/b , where a and b are natural numbers and $b \neq 0$ is known as fraction.

e.g., $3/5$ is a fraction,

where 3 is numerator and 5 is denominator.

There are 11 types of fraction.

1. **Unit fraction:** A fraction whose numerator is 1 is called a unit fraction.

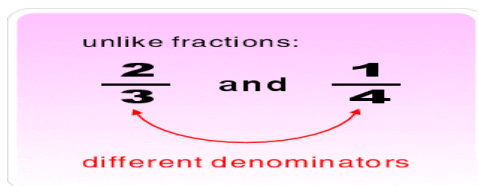
$$\frac{1}{5}, \frac{1}{8}, \frac{1}{13}, \frac{1}{17} \text{ etc}$$

2. **Like fraction:** Fractions which have the same denominator are called like fractions

Like fractions



3. **Unlike Fraction:** When the denominators of two or more fractions are different then they are said to be unlike fractions.



4. **Proper fraction:** A fraction whose numerator is less than its denominator is called a proper fraction.

$$\text{e.g. } \frac{2}{9}, \frac{4}{5}, \frac{6}{11} \text{ etc.}$$

5. **Improper fraction:** A fraction whose numerator is more than or equal to its denominator is called an improper fraction.

$$\text{e.g. } \frac{11}{3}, \frac{25}{12}, \frac{42}{23}, \frac{16}{16} \text{ etc.}$$

6. **Mixed fraction:** A number which can be expressed as the sum of a natural number and a proper fraction is called a mixed fraction.

$$\text{e.g. } 1\frac{3}{4}, 4\frac{5}{7}, 7\frac{9}{13}, 12\frac{6}{25} \text{ etc.}$$

7. **Decimal Fraction:** Write fractions with denominator 10 (tenths) as decimal numbers and write decimals as tenths.

$$\frac{3}{10}, \frac{7}{100}, \frac{13}{1000}, \frac{17}{10000} \text{ etc}$$

8. **Equivalent Fractions:** It is defined as the fractions having different numerators and denominators but same value.

We can say that $\frac{2}{6}$, $\frac{3}{9}$ and $\frac{4}{12}$ are the equivalent fractions which have different numbers but the same proportion. To get an equivalent

9. **Vulgar Fraction:** Vulgar fraction is the other name of Common fraction. In vulgar fraction, both the numerator and denominator will be expressed as whole number. Numerator will be always less than the denominator.

$$\frac{5}{10}, \frac{2}{7}, \frac{3}{8} \text{ etc.,}$$

10. **Complex fraction:** A complex fraction can be defined as a fraction in which the denominator and numerator or both contain fractions.

$$\frac{\frac{1}{12}}{\frac{4}{13}}, \frac{\frac{7}{15}}{\frac{8}{13}}, \frac{\frac{5}{6}}{\frac{13}{17}}, \text{ etc}$$

11. **Continued fraction:** A fraction of infinite length whose denominator is a quantity plus a fraction, which latter fraction has a similar denominator, and so on.

$$3 + \frac{1}{7 + \frac{1}{15 + \frac{1}{1 + \frac{1}{292 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2 + \dots}}}}}}}}}$$