Chapter 2

Fractions

• The numbers of the form a/b, where a and bare natural numbers is known as fraction.

• Proper fraction: A fraction whose numerator is less than its denominator.

• Improper fraction: A fraction in which numerator is greater than denominator.

• Mixed fraction: A combination of a natural number and a proper fraction.

Multiplication of a Fraction

By a Whole Number

• To multiply a whole number with a proper or an improper fraction, we multiply the whole number with the numerator of the fraction, keeping the denominator same. For example,

$$4 \times \frac{2}{3} = \frac{4 \times 2}{3} = \frac{8}{3}$$

• To multiply a mixed fraction to a whole number, first convert the mixed fraction to an improper fraction and then multiply. For example,

$$3 \times 2\frac{5}{7} = 3\frac{19}{7} = \frac{57}{7} = 8\frac{1}{7}$$

• A fraction acts as an operator 'of'. For example,

1/3 of 3 = 1/3 × 3 = 1.

• Fractions are multiplied as:

Product of Numerators/Product of Denominators

$$\frac{2}{3} \times \frac{5}{7} = \frac{2 \times 7}{3 \times 5} = \frac{14}{15}$$

• The product of a proper and an improper fraction is less than the improper fraction and greater than the proper fraction.

• The product of two improper fractions is greater than the two fractions.

Division of Fractions

• To divide a whole number by any fraction, multiply that whole number by the reciprocal of that fraction.

• While dividing a whole number by a mixed fraction, first convert the mixed fraction into improper fraction and then solve it.

Decimals

• The non-zero numbers whose product with each other is 1, are called the reciprocals of each other.

• To multiply a whole number by a decimal number, ignore the decimals and multiply the two numbers, then count the number of digits to the right of decimal point in the original decimal number and insert the decimal from right to left in the answer by the same count.

• To multiply a decimal number by 10, 100 or 1000, we move the decimal point in the number to the right by as many places as many zeros (0) are the right of one. For example, 1.44 × 10 = 14.4.

• To divide a decimal number by a whole number, convert the decimal number into a fraction, then take the reciprocal of the division and multiply the reciprocal by the fraction.

• To divide a decimal number by 10, 100 or 1000, shift the decimal point in the decimal number to the left by as many places as there are zeros over 1, to get the quotient.

• While dividing one decimal number by another, first shift the decimal points to the right by equal number of places in both, to convert the divisor to a natural number and then divide.