

CHAPTER – 8

DECIMALS

- To understand the parts of one whole (i.e. a unit) we represent a unit by a block. One block divided into 10 equal parts means each part is $\frac{1}{10}$ (one-tenth) of a unit. It can be written as 0.1 in decimal notation. The dot represents the decimal point and it comes between the units place and the tenths place.
- Every fraction with denominator 10 can be written in decimal notation and vice-versa.
- One block divided into 100 equal parts means each part is ($\frac{1}{100}$) (one-hundredth) of a unit. It can be written as 0.01 in decimal notation.
- Every fraction with denominator 100 can be written in decimal notation and vice-versa.
- In the place value table, as we go from left to the right, the multiplying factor becomes $\frac{1}{10}$ of the previous factor.
- **Fractions as Decimals:** Fractions can be converted into decimals by writing them in the form with denominators 10, 100 and so on. Example: $\frac{7}{10} = 0.7$
- **Decimals as Fractions:** Decimals can be converted into fractions by removing their decimal points and writing 10, 100, etc. in the denominators, depending upon the number of decimal places in the decimals. Examples: $0.9 = \frac{9}{10}$
- **Addition of Decimals:** Decimals can be added by writing them with equal number of decimal places. Example: Convert the given decimals as 0.005, 6.500 and 20.040.
 $0.005 + 6.500 + 20.040 = 26.545$
- **Subtraction of Decimals:** Decimals can be subtracted by writing them with equal number of decimal places.
Example: Subtract the given decimals as 5.674 and 12.500
 $12.500 - 5.674 = 6.826$
- **Comparing Decimals:** Decimals numbers can be compared using the idea of place value:
Example: 45.32 or 35.69

The given decimals have distinct whole number part, so we compare whole number part only. The whole number part of 45.32 is greater than 35.69. Therefore, $45.32 > 35.69$.

- **Using Decimals:** Many daily life problems can be solved by converting different units of measurements such as money, length, weight, etc. in the decimal form.

- **Money:**

100 paise = 1 Rupee

1 paise = $1/100$ Rupee = 0.01 Rs.

5 paise = $5/100$ Rs. = 0.05 Rs.

105 paise = 1 Rs. + 5 paise = 1.05 Rs.

7 Rs. 8 paise = 7 Rs. + 0.08 Rs = 7.08 Rs.

7 Rs. 80 paise = 7 Rs. + 0.80 Rs. = 7.80 Rs.

- **Length:**

10 mm = 1 cm

1mm = $1/10$ cm = 0.1 cm

100 cm = 1 m

1 cm = $1/100$ m = 0.01 m

1000 m = 1 km

1 m = $1/1000$ km = 0.001 km

- **Weight:**

1000 g = 1 kg

1 g = $1/1000$ kg = 0.001 kg

25 g = $25/1000$ kg = 0.025 kg