Division of Decimal Numbers

➡ **Division of Decimal By another Decimal:**

When we divide decimals, we have to convert the divisor to a whole number by moving the decimal point to the right. Then, we carry the dividend's decimal point up to the same number of places to the right and divide the resultant numbers in the usual way as we perform in regular long division.

➡ **The following steps are to be followed while dividing a decimal number by a decimal number.**

A. Form a fraction with the decimal number to be divided or the dividend as the numerator and the divisor decimal number as the denominator.
B. Multiply both the terms of the fraction formed in the previous step by 10 or 100 or 1000, so that the decimal point in the denominator is removed, thus dividing the numbers.

Let us understand with an example:

Example: Divide 5.944 by 0.8

Solution: $5.944 \div 0.8 = (5.944 \times 10) \div (0.8 \times 10)$

❖ Move the decimal point 1place to the right in both the dividend and the divisor by multiplying each by 10.
❖ Now, since the divisor is converted into a whole number, proceed with the division as done in the previous example.

$$
\begin{array}{r}
7.43 \\
8\overline{)59.44} \\
-56 \\
\hline
34 \\
-32 \\
\hline
24 \\
-24 \\
\hline
0
\end{array}
$$

⟵ The decimal points of the quotient and the dividend are aligned.

$59 = 7 \times 8 + 3$

$3 + 4 = 34$

$34 = 4 \times 8 + 2$

$2 + 4 = 24$

$24 = 3 \times 8$

Hence, 5.944 ÷ 0.8 = 7.43

Division of a decimal by a whole number:

Rules for Decimal Division by a Whole Number

- ❖ We use division or long division of decimals by whole numbers as if the decimals were whole numbers ignoring the decimal points.
- ❖ In the quotient that we get, we place the decimal point in the same spot as in the number that is being divided.

⇨ **Let us understand with an example:**

Example: A string 32. 97 m long is divided into 7 equal parts. What is the length of each part?

Solution: To find the length of each part divide 32.97 by 7.

- ❖ Divide the whole number part of the decimal.
- ❖ Place the decimal point in the quotient directly above the decimal point in the dividend.

$$
\begin{array}{r}
4.\,7\;1 \\
7\overline{)\,3\,2.\,9\;7} \\
-2\;8\downarrow \\
\hline
4\;9 \\
-\;4\;9\downarrow \\
\hline
0\;7 \\
-\;\;\;7 \\
\hline
0
\end{array}
$$

The length of each part of the string is 4.71m.

⇨ **Division of a Decimal by 10, 100, 1000**

The decimal point shifts by 1, 2 or 3 places to the left when a decimal number is divided by

10, 100 or 1, 000 respectively.

Let us understand with an example:

Example: Divide the following.

    a. $5.99 \div 10 = 0.599$ b. $784.8 \div 100 = 7.848$

    c. $5.26 \div 100 = 0.0526$

(Note: An extra zero is placed to complete the decimal place.)

    d. $532.8 \div 1000 = 0.5328$ e. $469.52 \div 100 = 4.6952$