

CHAPTER- 12

Length

Take a meter scale and measure the items mentioned in the table below and fill the table:

Item	Length	Breadth
Book		
Table		
Door		
Room		

In order to find the length and breadth which units did you use:

Length of a book - Centimeter/Metre/Both

Door - Centimeter/Metre/Both

Length and breadth of the room - Centimeter/Metre/Both

Now if you had to write the length in only meter or centimeter what would you do?

You would probably say that you would convert the centimeters to meters or Metre to centimetres.

Let us see how to do such conversions-

One example -

5 Metre = Centimetres?

5 Metre = 1 Metre + 1 Metre + 1 Metre + 1 Metre + 1 Metre
= 100 cm. + 100 cm. + 100 cm. + 100 cm. + 100 cm.
(\therefore 1 Metre = 100 cm.)

$$\begin{aligned}
 &= 100 \times 5 \text{ cm.} \\
 \text{or} \quad &= 5 \times 100 \text{ cm.} \\
 &= 500 \text{ cm.}
 \end{aligned}$$

So to change metre to centimetre we have to multiply by 100.

$$\begin{aligned}
 300 \text{ cm.} &= \text{..... metre?} \\
 &= 100 \text{ cm.} + 100 \text{ cm.} + 100 \text{ cm.} \\
 &= 1 \text{ metre} + 1 \text{ metre} + 1 \text{ metre} \\
 &= 3 \text{ metre} \\
 \text{or } 300 &\div 100 \text{ metre}
 \end{aligned}$$

Or do it like this -

$$\begin{aligned}
 \therefore 100 \text{ cm.} &\text{ equal to } 1 \text{ metre} \\
 \therefore 1 \text{ cm.} &\text{ equal to } \frac{1}{100} \text{ metre} \\
 \therefore 300 \text{ cm} &\text{ equal to } \frac{1}{100} \times 300 \text{ metre} \\
 &= 3 \text{ metre}
 \end{aligned}$$



To change centimetre to metre we have to divide by 100

In the lengths you have measured above, you used the unit meter and centimeters. If you want to find the distance of your school from your house or the distance of one village to another village, than what would be the unit of measure?

In such cases you would probably use 'Kilometre' as a measuring unit.

The distance of 1000 metre is equal to 1 Kilometre.

How will you convert these units to each other?

Take an example -

Example 1 : Convert 5 Kilometre to metres.

Solution : Let us use the unitary method.

\therefore 1 kilometre is equal to 1000 metres,

\therefore 5 kilometres equal to $= 5 \times 1000$

$= 5000$ metres.

Example 2 : How many kilometers are equal to 4000 metre?

Solution : 1000 metre equal to 1 kilometre

1 meter equal to $\frac{1}{1000}$ kilometre

\therefore 4000 metre equal to $\frac{1}{1000} \times 4000$ kilometre

$= 4$ kilometre

Change the units :

1. 700 centimetres = metre
2. 1200 centimetres = metre
3. 7 kilometres = metres
4. 2000 metres = kilometres
5. 40 metres = centimetres
6. 9000 metres = kilometres



Now answer these -

- (a) Can you write 170 centimetres in metres?
- (b) Can you explain 1200 metres in kilometres?

Let us find the solutions -

(a) \therefore 100 centimetres equal to 1 metre

\therefore 1 centimetre equal to $= \frac{1}{100}$ metre

\therefore 170 centimetres equal to $= \frac{1}{100} \times 170$

$= 1.70$ metre



In the same way we can also convert 1200 metres into kilometres.

Change the units-

1. 310 cm. to metre
2. 988 cm. to metre
3. 1760 metres to kilometre
4. 2010 metres to kilometre
5. 1007 cm. to metermetre

**Understand these-**

Example 3 : 5.6 metres = cm.?

Solution : \therefore 1 metre equals 100 cm.

$$\therefore 5.6 \text{ metres} = 5.6 \times 100 \text{ cm.}$$

$$= 560 \text{ cm}$$

Example 4 : 3.207 kilometres =metre?

Solution : \therefore 1 kilometre equal to 1000 meter

$$\therefore 3.207 \text{ kilometres} = 3.207 \times 1000 \text{ metre}$$

$$= 3207 \text{ metre}$$

**Exercise****Solve these -**

1. 3.2 metre is equal to how many centimetre?
2. 5.63metre equal to how many centimetre?
3. Convert 9.02 metres to centimetre.
4. Explain 3.407 kilometres in metre.
5. 0.035 kilometer equal to how many metre?
6. How many centimetre are there in 2 kilometre?

