



## Measuring Length

The standard unit for measuring length is **metre**.

We write metre as **m**, centimetre as **cm**, and millimetre as **mm** in short forms.

Basically,  $1 \text{ metre} = 100 \text{ centimetres}$   
 $10 \text{ millimetres} = 1 \text{ centimetre}$

There are different metre scales commonly used by people.

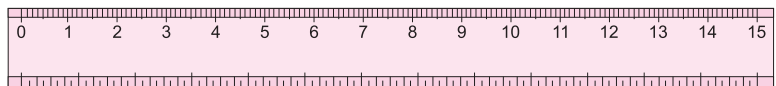
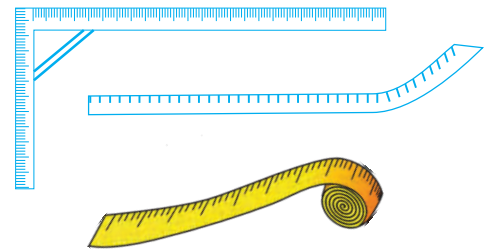
The metre rod made of iron or wood is used by cloth merchants for measuring lengths of the clothes.



The metre scale (tape) is used by masons, carpenters or the people engaged in the technical works.

The metre scale (tape) is used by tailors.

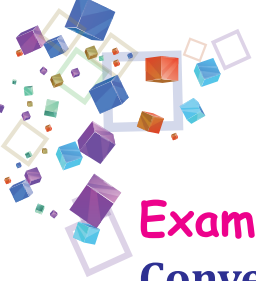
The ruler is generally used by students for measuring small distances, such as the distance between two points.



### Facts to Know

- Some non-standard units of measurement of length are handspan, footspan, cubit, palm, digit and pace.





**Example I :**  $260 \text{ cm} = 200 \text{ cm} + 60 \text{ cm} = 2 \text{ m } 60 \text{ cm}$

**Convert the following lengths in metres and centimetres.**

1.  $525 \text{ cm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
2.  $465 \text{ cm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
3.  $675 \text{ cm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
4.  $980 \text{ cm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
5.  $760 \text{ cm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$

**Example II :**  $65 \text{ mm} = 60 \text{ mm} + 5 \text{ mm} = 6 \text{ cm } 5 \text{ mm}$

**Convert the following lengths in centimetres and millimetres.**

1.  $56 \text{ mm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
2.  $78 \text{ mm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
3.  $63 \text{ mm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
4.  $89 \text{ mm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$
5.  $95 \text{ mm} = \dots\dots\dots + \dots\dots\dots = \dots\dots\dots$



## Addition and Subtraction of Metre and centimetre

**Example III :** Add  $45 \text{ m } 24 \text{ cm}$  and  $48 \text{ m } 76 \text{ cm}$ .

**Solution :**

m	cm
11	1
45	24
+ 48	76
94	00



**Add the following.**

<p>1. <table style="margin: 0; width: 100%;"><tr><td style="padding: 5px;">m</td><td style="padding: 5px;">cm</td></tr><tr><td style="padding: 5px;">35</td><td style="padding: 5px;">65</td></tr><tr><td style="padding: 5px;">+ 43</td><td style="padding: 5px;">25</td></tr></table></p>	m	cm	35	65	+ 43	25	<p>2. <table style="margin: 0; width: 100%;"><tr><td style="padding: 5px;">m</td><td style="padding: 5px;">cm</td></tr><tr><td style="padding: 5px;">56</td><td style="padding: 5px;">69</td></tr><tr><td style="padding: 5px;">+ 48</td><td style="padding: 5px;">48</td></tr></table></p>	m	cm	56	69	+ 48	48	<p>3. <table style="margin: 0; width: 100%;"><tr><td style="padding: 5px;">m</td><td style="padding: 5px;">cm</td></tr><tr><td style="padding: 5px;">45</td><td style="padding: 5px;">66</td></tr><tr><td style="padding: 5px;">+ 42</td><td style="padding: 5px;">47</td></tr></table></p>	m	cm	45	66	+ 42	47	<p>4. <table style="margin: 0; width: 100%;"><tr><td style="padding: 5px;">m</td><td style="padding: 5px;">cm</td></tr><tr><td style="padding: 5px;">26</td><td style="padding: 5px;">80</td></tr><tr><td style="padding: 5px;">+ 24</td><td style="padding: 5px;">65</td></tr></table></p>	m	cm	26	80	+ 24	65
m	cm																										
35	65																										
+ 43	25																										
m	cm																										
56	69																										
+ 48	48																										
m	cm																										
45	66																										
+ 42	47																										
m	cm																										
26	80																										
+ 24	65																										





**Example IV :** One piece of rope measures 25 m 84 cm. Another piece measures 18 m 46 cm. Find the total length of the two pieces of rope.

**Solution :**

	m	cm
	25	84
+	18	46
<hr/>		
	44	30

Total length : ..... 44 ..... m ..... 30 ..... cm



**Example V :** Subtract 25 m 86 cm from 98 m 40 cm.

**Solution :**

	m	cm
	98	40
-	25	86
<hr/>		
	72	54



**Subtract the following.**

1.	m	cm
	258	27
-	126	29
<hr/>		

2.	m	cm
	282	25
-	195	28
<hr/>		

3.	m	cm
	48	76
-	36	46
<hr/>		

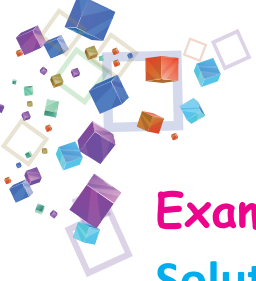
4.	m	cm
	19	75
-	18	25
<hr/>		



## Multiplication and Division of Metre and Centimetre

The **multiplication** and **division** in **lengths** are the **same** as the **multiplication** and **division** in the case of **numbers**.





**Example VI :**  $8\text{ m} \times 6$

**Solution :**

m
8
× 6
48



**Solve the following.**

1.	m
	46
×	7

2.	cm
	54
×	6

3.	m
	27
×	9

4.	cm
	38
×	8

**Example VII :**  $56\text{ m} \div 8$

**Solution :**

7 m
8 ) 56
- 56
0



**Solve the following.**

1.	cm
8 )	72

2.	m
6 )	48

3.	m
5 )	30

4.	cm
8 )	56





## Exercise 11.1



### A. Convert the following into centimetres (cm).

1.  $5 \text{ m} = 5 \times 100 \text{ cm} = 500 \text{ cm}$       2.  $4 \text{ m} =$   
 ..... = .....
3.  $7 \text{ m} =$  ..... = .....      4.  $9 \text{ m} =$   
 ..... = .....

### B. Write the following in centimetres.

1.  $3 \text{ m } 45 \text{ cm} = [(3 \times 100) + 45] \text{ cm} = 345 \text{ cm}$   
 2.  $7 \text{ m } 45 \text{ cm} =$  ..... = .....  
 3.  $6 \text{ m } 25 \text{ cm} =$  ..... = .....  
 4.  $5 \text{ m } 87 \text{ cm} =$  ..... = .....

- C. A table is 12 cm long. How much is the length of 8 such tables taken together?
- D. Deepak has cut 8 m long shawl of his mother into 4 equal parts. How much is the length of each part?
- E. A goods bus is 259 m 25 cm long and a passenger bus is 120 m 75 cm long. Find the length of both the buses together.



## Measuring Mass (Weight)

We use **grams** and **kilograms** to weigh light and heavy objects. Some instruments with which we measure the weight of things are shown below:

The short form of **kilogram** is **kg**.

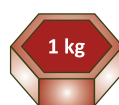
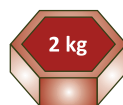
The short form of **grams** is **g**.

1 kilogram is equal to 1000 grams.

$1 \text{ kg} = 1000 \text{ g}$



Balances





We use gram for measuring weight of lighter objects or small quantities. **For example** : gold is measured in grams.

We use kilogram for measuring our weight, measuring large quantities of things like wheat, rice, sugar etc. We measure weight of large quantities in **quintals** also.



## Addition and Subtraction of Kilogram and Gram

**Example VIII** : Add 7 kg 236 g and 8 kg 432 g.

**Solution** :

	Kg	g
	7	236
+	8	432
	15	668



1. 

	Kg	g
	49	280
+	16	669

2. 

	Kg	g
	46	636
+	32	488

3. 

	Kg	g
	32	480
+	26	496

4. 

	Kg	g
	46	348
+	25	684

**Example IX** : Subtract 2 kg 258 g from 9 kg 342 g.

**Solution** :

	Kg	g
	9	342
-	2	258
	7	084





$$\begin{array}{r} 1. \quad \text{Kg} \quad \text{g} \\ 42 \quad 784 \\ - 29 \quad 387 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \text{Kg} \quad \text{g} \\ 46 \quad 765 \\ - 34 \quad 000 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \text{Kg} \quad \text{g} \\ 84 \quad 830 \\ - 42 \quad 000 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad \text{Kg} \quad \text{g} \\ 78 \quad 465 \\ - 49 \quad 065 \\ \hline \end{array}$$

**Example X:** A shopkeeper had 60 kg 486 g of wheat. He sold 26 kg 340 g to the customer. How much wheat is left with him?  
Wheat left: ...34... kg ...146... g

$$\begin{array}{r} \text{Kg} \quad \text{g} \\ 60 \quad 486 \\ - 26 \quad 340 \\ \hline 34 \quad 146 \end{array}$$



## Multiplication and Division of Kilogram and Gram

The **multiplication** and **division** in measures of **weight** or mass are the **same** as the **multiplication** and **division** of **numbers**.

**Example XI:**  $18 \text{ g} \times 6$

**Solution :**

$$\begin{array}{r} \text{g} \\ 18 \\ \times 6 \\ \hline 108 \text{ g} \end{array}$$



**Solve the following.**

$$\begin{array}{r} 1. \quad \text{g} \\ 85 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \text{g} \\ 48 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \text{g} \\ 42 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad \text{g} \\ 23 \\ \times 9 \\ \hline \end{array}$$



**Example XII** : Solve  $36 \text{ kg} \div 9$ .

**Solution** :

$$\begin{array}{r}
 4 \text{ kg} \\
 9 \overline{) 36} \\
 \underline{- 36} \\
 0
 \end{array}$$



**Solve the following.**

1.  $\frac{\text{kg}}{8 \overline{) 64}}$

2.  $\frac{\text{kg}}{6 \overline{) 42}}$

3.  $\frac{\text{kg}}{9 \overline{) 63}}$

4.  $\frac{\text{kg}}{10 \overline{) 60}}$



### Exercise 11.2

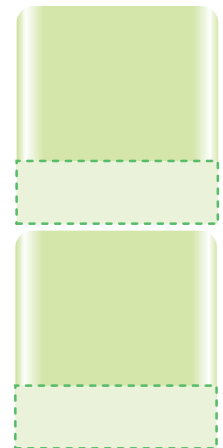
**A.** Tick (✓) the heavier.

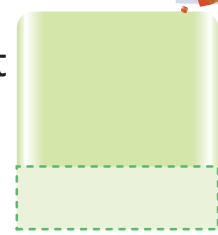


**B.** A shopkeeper has 486 kg 340 g rice and 98 kg 638 g of pea. How much grain is he has all together ?

**Answer:** ..... kg ..... g

**C.** 720 g of barley is equally divided among 12 girls. Each girl gets ..... g of barley.

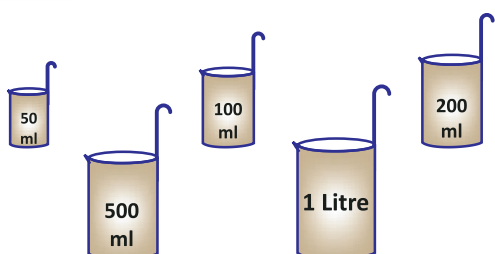




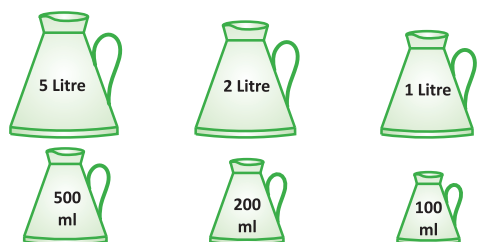
D. 180 kg of paddy is equally packed in 15 packets. Each packet contains ..... kg of paddy.



## Measuring Capacity



Containers used for measuring milk



Containers used for measuring oil or petrol

The quantity of liquid that a container can hold is called its **capacity**. **Litre** or **millilitre** is the unit of measuring the capacity of liquid. The short form of litre is *l* and millilitre is *ml*.

$$1 \text{ litre} = 1000 \text{ millilitres}$$

$$\text{or } 1 \text{ l} = 1000 \text{ ml}$$

The standard unit for measuring capacity is **litre**.

Items measured in litre are water, milk, kerosene, petrol, diesel, oil etc. Items measured in millilitre are medicine, hair-oil, shampoo, ink, turpentine etc.



## Addition and Subtraction of Litre and Millilitre

**Example XIII :** Add 5 l 278 ml and 2 l 460 ml.

	l	ml
	5	278
+	2	460
<hr/>		
	7	738







Solve the following.

1.	l	ml
	45	266
+	17	429

2.	l	ml
	45	305
+	43	678

3.	l	ml
	82	476
+	24	386

4.	l	ml
	24	269
+	27	480

Example XIV : Subtract 16 l 786 ml from 28 l 489 ml.

	l	ml
	7	14
	<del>28</del>	<del>489</del>
-	16	786
-----		
	11	703



Facts to Know

Americans use pints, quarts and gallons for measuring liquids.

Solve the following.

1.	l	ml
	228	828
-	68	326

2.	l	ml
	9	329
-	6	875

3.	l	ml
	46	960
-	22	775

4.	l	ml
	408	800
-	67	600

Example XV : There were 346 litres of milk in a milk tank. A milk lorry poured 660 litres more milk into the tank. How much milk was there in the tank?

	l	ml
	346	000
+	660	000
-----		
	1006	000

1006  
Milk left : .....







# Multiplication and Division of Litre and Millilitre

The **multiplication** and **division** in measures of **capacity** are the **same** as the **multiplication** and **division** of **numbers**.

**Example XVI** : Solve  $13 \text{ l} \times 6$ .

**Solution** :

$$\begin{array}{r}
 \text{l} \\
 13 \\
 \times 6 \\
 \hline
 78
 \end{array}$$



**Solve the following.**

1.

$$\begin{array}{r}
 \text{l} \\
 7 \\
 \times 6 \\
 \hline
 \end{array}$$

2.

$$\begin{array}{r}
 \text{l} \\
 23 \\
 \times 7 \\
 \hline
 \end{array}$$

3.

$$\begin{array}{r}
 \text{ml} \\
 62 \\
 \times 10 \\
 \hline
 \end{array}$$

4.

$$\begin{array}{r}
 \text{ml} \\
 80 \\
 \times 6 \\
 \hline
 \end{array}$$

**Example XVII** : Solve  $42 \text{ ml} \div 7$ .

$$\begin{array}{r}
 6 \text{ ml} \\
 7 \overline{) 42} \\
 \underline{- 42} \\
 0
 \end{array}$$



**Solve the following.**

1.

$$\begin{array}{r}
 \text{ml} \\
 8 \overline{) 80} \\
 \hline
 \end{array}$$

2.

$$\begin{array}{r}
 \text{l} \\
 9 \overline{) 36} \\
 \hline
 \end{array}$$

3.

$$\begin{array}{r}
 \text{ml} \\
 6 \overline{) 42} \\
 \hline
 \end{array}$$

4.

$$\begin{array}{r}
 \text{l} \\
 4 \overline{) 84} \\
 \hline
 \end{array}$$





**Example XVIII :** A bottle has 60 ml oil. The total quantity of oil in 5 such bottle is ...300... ml.

$$\begin{array}{r}
 \text{ml} \\
 60 \\
 \times 5 \\
 \hline
 300
 \end{array}$$



### Exercise 11.3

**A.** Which of the following will you measure in *ml* or *l*?

1.



Ink in the inkpot .....

2.



Syringe containing medicine .....

3.



Water in the tank .....

4.



Water in the bucket .....

5.



Medicine in the spoon .....

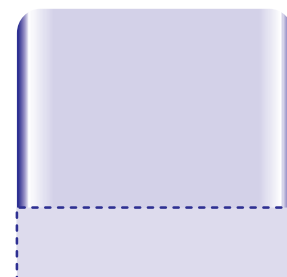
6.



Cold drink in bottle .....

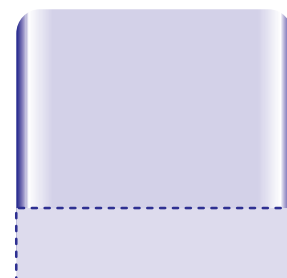
**B.** The capacity of a water tank is 960 litres. 876 litres of water is pumped into it. How much more water does it require to fill it?

**Answer:** ..... l



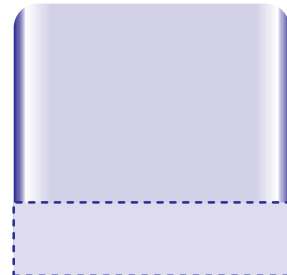
**C.** Rajni bought a 950 ml bottle of tonic. After 2 weeks, 490 ml was left. How much tonic had she used?

**Answer:** ..... ml



**D.** A milkman bought 485 litres of milk. He sold 265 litres of milk in a colony. How much milk is left with him?

**Answer:** ..... l





## Points to Remember



- ❖ Length is measured in metre.
- ❖ People like mason, carpenter, tailor or student use different types of metre scales.
- ❖ We use gram and kilogram for measuring weight.
- ❖ Liquid is measured in litre and millilitre .



## EXERCISE

### A. Multiple Choice Questions (MCQs)

Tick (✓) the correct option :

1. Which one of these is mainly used by cloth merchants?
 

(i) Metre rod	<input type="checkbox"/>	(ii) Ruler	<input type="checkbox"/>
(iii) Metre scale	<input type="checkbox"/>	(iv) Tape	<input type="checkbox"/>
  
2. Anushka bought two carpets measuring 38 m 68 cm and 34 m 28 cm. What is the length of both the carpets together?
 

(i) 72 m 93 cm	<input type="checkbox"/>	(ii) 14 m 40 cm	<input type="checkbox"/>
(iii) 62 m 95 cm	<input type="checkbox"/>	(iv) 72 m 96 cm	<input type="checkbox"/>
  
3. Chestha bought 86 m 76 cm cloth. She used 42 m 56 cm for making curtains. How much cloth is left with her?
 

(i) 45 m 35 cm	<input type="checkbox"/>	(ii) 44 m 20 cm	<input type="checkbox"/>
(iii) 45 m 20 cm	<input type="checkbox"/>	(iv) 34 m 25 cm	<input type="checkbox"/>
  
4. The length of a pen is 26 cm. How much is the total length of 6 such pens?
 

(i) 180 cm	<input type="checkbox"/>	(ii) 156 cm	<input type="checkbox"/>
(iii) 165 cm	<input type="checkbox"/>	(iv) 175 cm	<input type="checkbox"/>





5. A milkman has 466 litres of milk. He sold 456 litres of milk in a colony. How much milk was left with him?

(i) 10 l



(ii) 20 l



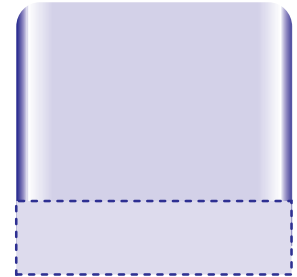
(iii) 30 l



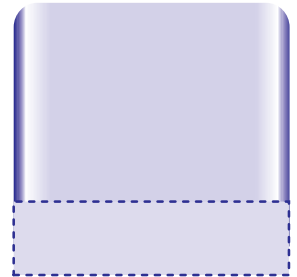
(iv) 50 l



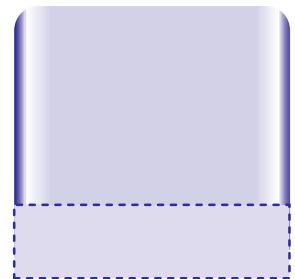
B. The height of the wall is 180 cm, which is made of bricks. Total 30 bricks have been used to build it. What will be the height of each brick?



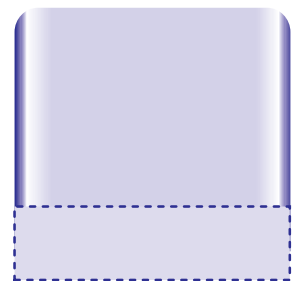
C. Rajan weighs 68 kg 366 g and Pradeep weighs 62 kg 369 g. Find their total weight.



D. A milkman has 8 cows which give equal amount of milk. The milkman gets 40 l of milk from his cows. Each cow gives..... l of milk.



E. There is a water tank and a bucket of capacities 240 l and 12 l each respectively. How many buckets fill the water tank?





A milkman has 3 drums filled with 286 litres, 360 litres and 480 litres of milk respectively. He sold 160 litres of milk from each drum. How much milk is left with him altogether?

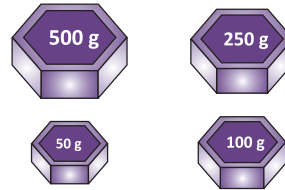
## Lab Activity

**Objective** : To learn about measurement.

**Materials Required** : A balance, paper, pencil, small weights such as 500 grams, 250 grams, 100 grams and 50 grams

### Activities:

- ❖ The teacher asks the students to make data for the weights of different items.
- ❖ Take some items like notebook, geometry box, duster, chalk box and school bag.



- ❖ Now, place the item in one pan of balance and the weight in another pan to measure.

Now, make the data as follows :

