

Unit 5 : Length

Friendly Notes

Meters and Centimeters

The meter (m) and centimeter (cm) are units of length.

$$1 \text{ m} = 100 \text{ cm}$$

1. Write 2 m 64 cm in cm.

2 m 64 cm is
64 cm more
than 2 m.



$$2 \text{ m } 64 \text{ cm} = 264 \text{ cm}$$

$$\begin{aligned} 2 \text{ m} &= 2 \times 100 \text{ cm} \\ &= 200 \text{ cm} \\ 2 \text{ m } 64 \text{ cm} &= 200 \text{ cm} + 64 \text{ cm} \end{aligned}$$



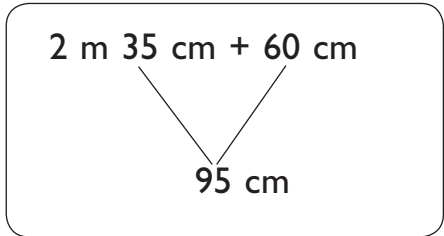
2. Write 839 cm in m and cm.

$$\begin{aligned} 839 \text{ cm} &= 800 \text{ cm} + 39 \text{ cm} \\ 8 \text{ m} &= 800 \text{ cm} \end{aligned}$$

$$839 \text{ cm} = 8 \text{ m } 39 \text{ cm}$$



3. Find the sum of 2 m 35 cm and 60 cm.



$$2 \text{ m } 35 \text{ cm} + 60 \text{ cm} = 2 \text{ m } 95 \text{ cm}$$



4. Find the difference between 3 m 18 cm and 1 m 30 cm.

$$3 \text{ m } 18 \text{ cm} = 318 \text{ cm}$$

$$1 \text{ m } 30 \text{ cm} = 130 \text{ cm}$$

$$318 \text{ cm} - 130 \text{ cm} = 188 \text{ cm}$$
$$= 1 \text{ m } 88 \text{ cm}$$

$$\begin{array}{r} 318 \\ - 130 \\ \hline 188 \end{array}$$



Kilometers

The kilometer (km) is another unit of length.

We use the kilometer to measure long distances such as the length of a road or the distance we travel from one place to another.

$$1 \text{ km} = 1,000 \text{ m}$$

1. Write 4 km 208 m in m.

$$\begin{aligned} 4 \text{ km} &= 4,000 \text{ m} \\ 4 \text{ km } 208 \text{ m} &= 4,000 \text{ m} + 208 \text{ m} \end{aligned}$$

$$4 \text{ km } 208 \text{ m} = 4,208 \text{ m}$$



2. Write 7,090 m in km and m.

$$\begin{aligned} 7,090 \text{ m} &= 7,000 \text{ m} + 90 \text{ m} \\ 7 \text{ km} &= 7,000 \text{ m} \end{aligned}$$

$$7,090 \text{ m} = 7 \text{ km } 90 \text{ m}$$



3. Find the sum of 1 km 206 m and 1 km 590 m.

$$1 \text{ km } 206 \text{ m} \xrightarrow{+ 1 \text{ km}} 2 \text{ km } 206 \text{ m} \xrightarrow{+ 590 \text{ m}} 2 \text{ km } 796 \text{ m}$$



$$1 \text{ km } 206 \text{ m} + 1 \text{ km } 590 \text{ m} = 2 \text{ km } 796 \text{ m}$$

4. Find the difference between 2 km and 1 km 207 m.

$$\begin{aligned} 2 \text{ km} - 1 \text{ km} &= 1 \text{ km} \\ &= 1,000 \text{ m} \\ 1,000 \text{ m} - 207 \text{ m} &= 793 \text{ m} \end{aligned}$$



$$2 \text{ km} - 1 \text{ km } 207 \text{ m} = 793 \text{ m}$$

Yards, Feet, and Inches

The yard (yd), foot (ft), and inch (in.) are other units of length.

1 yd is shorter than a meter.

$$\begin{aligned}1 \text{ yd} &= 3 \text{ ft} \\1 \text{ ft} &= 12 \text{ in.}\end{aligned}$$

1. Write 12 yd in feet.

$$\begin{aligned}1 \text{ yd} &= 3 \text{ ft} \\12 \text{ yd} &= 12 \times 3 \text{ ft} \\&= 36 \text{ ft}\end{aligned}$$

$$12 \text{ yd} = 36 \text{ ft}$$



2. Write 15 yd 4 ft in feet.

$$\begin{aligned}1 \text{ yd} &= 3 \text{ ft} \\15 \text{ yd} &= 15 \times 3 \text{ ft} \\&= 45 \text{ ft} \\15 \text{ yd } 4 \text{ ft} &= 45 \text{ ft} + 4 \text{ ft}\end{aligned}$$

$$15 \text{ yd } 4 \text{ ft} = 49 \text{ ft}$$



3. Write 134 ft in yards.

$$\begin{array}{r}134 \text{ ft} \\ \swarrow \quad \searrow \\132 \text{ ft} \quad 2 \text{ ft} \\ | \\44 \text{ yd}\end{array}$$

$$134 \text{ ft} = 44 \text{ yd } 2 \text{ ft}$$



4. Write 2 ft 8 in. in inches.

$$\begin{aligned}1 \text{ ft} &= 12 \text{ in.} \\2 \text{ ft} &= 2 \times 12 \text{ in.} \\2 \text{ ft } 8 \text{ in.} &= 24 + 8 \text{ in.} \\&= 32 \text{ in.}\end{aligned}$$



$$2 \text{ ft } 8 \text{ in.} = 32 \text{ in.}$$

5. Find the value of 2 yd 4 ft + 3 yd 5 ft in yards.

$$2 \text{ yd } 4 \text{ ft} \xrightarrow{+ 3 \text{ yd}} 5 \text{ yd } 4 \text{ ft} \xrightarrow{+ 5 \text{ ft}} 5 \text{ yd } 9 \text{ ft}$$



$$\begin{aligned}2 \text{ yd } 4 \text{ ft} + 3 \text{ yd } 5 \text{ ft} &= 5 \text{ yd } 9 \text{ ft} \\&= 8 \text{ yd}\end{aligned}$$

$$\begin{aligned}1 \text{ yd} &= 3 \text{ ft} \\3 \text{ yd} &= 9 \text{ ft}\end{aligned}$$



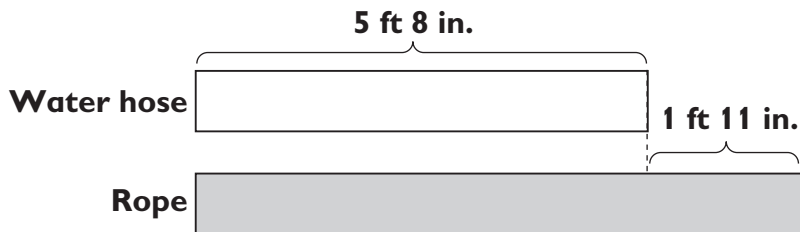
6. Find the value of 2 ft – 9 in. in inches.

$$\begin{aligned}2 \text{ ft} &= 2 \times 12 \text{ in.} \\&= 24 \text{ in.}\end{aligned}$$

$$\begin{aligned}2 \text{ ft} - 9 \text{ in.} &= 24 \text{ in.} - 9 \text{ in.} \\&= 15 \text{ in.}\end{aligned}$$



7. A water hose is 5 ft 8 in. long.
A rope is 1 ft 11 in. longer than the water hose.
- Find the length of the rope.
 - Find the total length of the water hose and the rope.



(a) $5 \text{ ft } 8 \text{ in.} \xrightarrow{+ 1 \text{ ft}} 6 \text{ ft } 8 \text{ in.} \xrightarrow{+ 11 \text{ in.}} 7 \text{ ft } 7 \text{ in.}$

$$5 \text{ ft } 8 \text{ in.} + 1 \text{ ft } 11 \text{ in.} = 7 \text{ ft } 7 \text{ in.}$$

The length of the rope is 7 ft 7 in.



(b) $5 \text{ ft } 8 \text{ in.} \xrightarrow{+ 7 \text{ ft}} 12 \text{ ft } 8 \text{ in.} \xrightarrow{+ 7 \text{ in.}} 13 \text{ ft } 3 \text{ in.}$

$$5 \text{ ft } 8 \text{ in.} + 7 \text{ ft } 7 \text{ in.} = 13 \text{ ft } 3 \text{ in.}$$

The total length of the water hose and the rope is 13 ft 3 in.



Miles

The mile (mi) is another unit of length.
One mile is longer than 1 km.
We measure long distances in miles.

$$1 \text{ mile} = 5,280 \text{ ft}$$

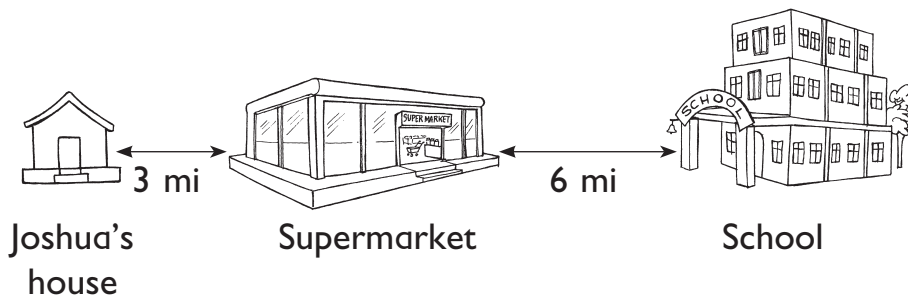
1. Write 1 mile in yd.

$$\begin{aligned} 1 \text{ mile} &= 5,280 \text{ ft} \\ &= 1,760 \text{ yd} \end{aligned}$$

$$1 \text{ yd} = 3 \text{ ft}$$



2. Find the distance between Joshua's house and the school.



The distance between Joshua's house and the school is 9 mi.