

Jender Heart High School, Sec-33B, Chandigarh.

Class - IV

Date - 14.10.2024

Subject - Mathematics

Teacher - Ms. Sushma

Chapter - 9 Measurement

We use standard units for measuring length, height and distance. These standard units are centimetre (cm), metre (m) and kilometre (km)

Relation between units

$$1 \text{ km} = 1000 \text{ m}$$

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

$$1 \text{ cm} = 10 \text{ mm}$$

Exercise 9.2

A. Convert to centimetres.

To convert higher units to lower units, we multiply.

$$1. \quad 3 \text{ m} = 3 \times 100 \text{ cm} = 300 \text{ cm} \quad \because 1 \text{ m} = 100 \text{ cm}$$

$$\begin{aligned} 2. \quad 9 \text{ m } 16 \text{ cm} &= 9 \times 100 + 16 \\ &= 900 + 16 \\ &= 916 \text{ cm} \end{aligned}$$

$$\begin{aligned} 3. \quad 19 \text{ m } 1 \text{ cm} &= 19 \times 100 + 1 = 1900 + 1 \\ &= 1901 \text{ cm} \end{aligned}$$

$$\begin{aligned} 4. \quad 30 \text{ mm} &= 30 \div 10 \quad 1 \text{ cm} = 10 \text{ mm} \\ &= 3 \text{ cm} \quad [\because \text{To convert lower units to higher units, we divide}] \end{aligned}$$

B. Convert to metres.

$$1 \text{ km} = 1000 \text{ m}$$

$$1. \quad 7 \text{ km}$$

$$= 7 \times 1000 = 7000 \text{ m}$$

$$2. \quad 9 \text{ km } 750 \text{ m}$$

$$= 9 \times 1000 + 750 = 9000 + 750 = 9750 \text{ m}$$

$$3. \quad 2 \text{ km } 25 \text{ m} = 2 \times 1000 + 25 = 2000 + 25 = 2025 \text{ m}$$

$$4. \quad 8 \text{ km } 250 \text{ m} = 8 \times 1000 + 250 = 8000 + 250 = 8250 \text{ m}$$

C. Convert to metres and centimetres.

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$$\begin{array}{c} \underline{16} \quad \underline{38} \div 100 \\ \downarrow \quad \downarrow \\ \text{m} \quad \text{cm} \end{array}$$

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$$1. \quad 500 \text{ cm} = \underline{500} \div 100 = 5 \text{ m}$$

$$2. \quad 925 \text{ cm} = 925 \div 100 = 9 \text{ m } 25 \text{ cm}$$

$$3. \quad 1638 \text{ cm} = 1638 \div 1000 = 16 \text{ m } 38 \text{ cm}$$

$$4. \quad 1901 \text{ cm} = 1901 \div 1000 = 19 \text{ m } 01 \text{ cm}$$

D. Convert to kilometres and metres.

$$1. \quad 5175 \text{ m} = \underbrace{5}_{\text{km}} \underbrace{175}_{\text{m}} \div 1000 = 5 \text{ km } 175 \text{ m}$$

$$2. \quad 3000 \text{ m} = 3000 \div 1000 = 3 \text{ km}$$

$$3. \quad 4950 \text{ m} = 4950 \div 1000 = 4 \text{ km } 950 \text{ m}$$

E. Convert to millimetres.

$$1 \text{ cm} = 10 \text{ mm}$$

$$1. \quad 2 \text{ cm} = 2 \times 10 = 20 \text{ mm}$$

$$2. \quad 24 \text{ cm} = 24 \times 10 = 240 \text{ mm}$$

$$3. \quad 7 \text{ cm } 5 \text{ mm} = 7 \times 10 + 5 = 70 + 5 = 75 \text{ mm}$$

$$4. \quad 81 \text{ cm } 9 \text{ mm} = 81 \times 10 + 9 = 810 + 9 = 819 \text{ mm}$$

F. Convert to centimetres and millimetres.

$$1. \quad 30 \text{ mm} = 30 \div 10 = 3 \text{ cm}$$

$$2. \quad 300 \text{ mm} = 300 \div 10 = 30 \text{ cm}$$

$$3. \quad 450 \text{ mm} = 450 \div 10 = 45 \text{ cm}$$

$$4. \quad 129 \text{ mm} = 129 \div 10 = 12 \text{ cm } 9 \text{ mm}$$

Solve these story sums.

1. Vikas is flying a kite at a height of 10500cm.
How many metres is this?

Soln:- A kite is flying at a height of 10500cm
1 m = 100cm

$$\begin{aligned} 10500 \div 100 \\ = 105m \end{aligned}$$

$\therefore$ The kite is flying at a height of 105m.

2. Mahesh's car travels 23000m in a day.
How many kilometres is this?

Soln:- Distance covered by Mahesh's car = 23000m
 $= 23000 \div 1000$
 $= 23km$

3. Find out the length of your 15cm scale in millimetres.

Soln:- Length of scale = 15cm
 $= 15 \times 10$
 $= 150mm$

$\therefore$ Length of scale = 150mm.

4. Granny knitted a 2m 50cm long shawl for China. Convert this length to centimetres.

Soln:- Length of shawl = 2m 50cm
 $= 2 \times 100 + 50 = 200 + 50 = 250cm$

Q5. The length of a rope is 873 cm. Express the length in m and cm.

Soln:- The length of a rope = 873 cm
$$= 873 \div 100$$
$$= 8 \text{ m } 73 \text{ cm}$$

Measurement of Mass (Weight)

We use standard units for measuring mass. The standard unit of mass is gram (g).

A kilogram (kg) is a unit used to measure a large mass.

Milligram (mg) is a unit used to measure very small mass. A thousand milligrams makes one gram.

Relation between units

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

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

$$\frac{1}{2} \text{ kg} = 500 \text{ g}$$

$$\frac{1}{4} \text{ kg} = 250 \text{ g}$$

$$\frac{3}{4} \text{ kg} = 750 \text{ g}$$

Exercise 9.3.

A. Convert to grams.

$$1. \quad 8 \text{ kg} = 8 \times 1000 = 8000 \text{ g} \qquad 1 \text{ kg} = 1000 \text{ g}$$

$$2. \quad 9 \text{ kg } 279 \text{ g} = 9 \times 1000 + 279 = 9000 + 279 = 9279 \text{ g}$$

$$3. \quad 11 \text{ kg } 9 \text{ g} = 11 \times 1000 + 9 = 11000 + 9 = 11009 \text{ g.}$$

B. Convert to kilograms.

$$1. \quad 4000 \text{ g} = 4000 \div 1000 = 4 \text{ kg}$$

$$2. \quad 23000 \text{ g} = 23000 \div 1000 = 23 \text{ kg}$$

C. Convert to kilograms and grams.

$$1. \quad 4083 \text{ g} = \underset{\substack{\downarrow \\ \text{kg}}}{40} \overset{\substack{\downarrow \\ \text{g}}}{83} \div 1000 = 4 \text{ kg } 83 \text{ g}$$

$$2. \quad 3500 \text{ g} = 3500 \div 1000 = 3 \text{ kg } 500 \text{ g}$$

$$3. \quad 31020 \text{ g} = 31020 \div 1000 = 31 \text{ kg } 20 \text{ g}$$

$$4. \quad 8008 \text{ g} = 8008 \div 1000 = 8 \text{ kg } 8 \text{ g.}$$

Exercise 9.1



A. Circle the measure that is shorter.

1. 2 m or 2 km

2. 4 cm or 4 m

3. 50 cm or 50 mm

4. 6 mm or 6 m

5. 75 cm or 75 dm

6. 900 m or 900 dm

B. Use a scale to measure the given line segments.

1. $\overline{AB}$ 2 cm

2. $\overline{MN}$ 4 cm 5 mm

3. $\overline{PQ}$ 2 cm 4 mm

4. $\overline{RS}$ 2 cm 6 mm