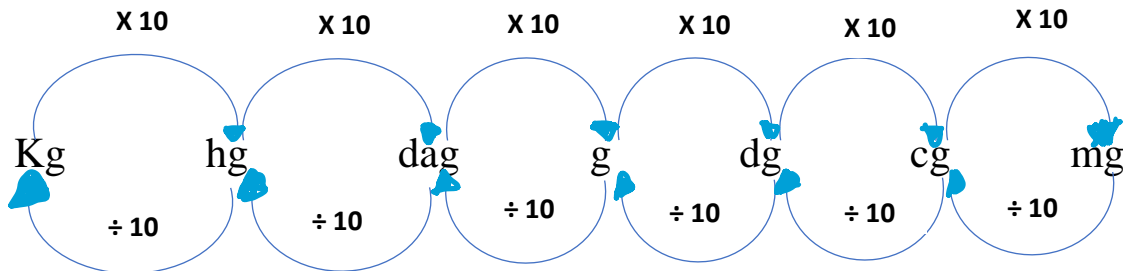


Mass

- (a) The amount of matter in an object is called mass.
- (b) The standard unit of mass is **gram (g)**.
- (c) To change from higher unit to lower unit, we multiply each step by 10.



- (d) To change from lower to higher units, we divide each step by 10.
- (e) Kilogram, Hectogram and Decagram are higher units.
- (f) Decigram, Centigram and Milligram are lower units.

Important Relationships

$$\begin{array}{ll} 1 \text{ kg} = 1000 \text{ g} & 1 \text{ mg} = \frac{1}{1000} \text{ g} = 0.001 \text{ g} \\ 1 \text{ hg} = 100 \text{ g} & 1 \text{ cg} = \frac{1}{100} \text{ g} = 0.01 \text{ g} \\ 1 \text{ dag} = 10 \text{ g} & 1 \text{ dg} = \frac{1}{10} \text{ g} = 0.1 \text{ g} \end{array}$$



Self Practice 11B

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1. Fill in the blanks.

- (a) 1 kilogram = 1000 grams
- (b) 1 gram = 1000 milligrams
- (c) 1 decagram = 10 grams
- (d) 1 hectogram = 1000 decigrams
- (e) 1 decagram = 100 decigrams
- (f) 1 decigram = 10 centigrams
- (g) 1 gram = $\frac{1}{1000}$ kilogram
- (h) 1 milligram = $\frac{1}{10}$ centigram
- (i) 1 hectogram = $\frac{1}{10}$ kilogram
- (j) 1 decigram = $\frac{1}{10}$ decagram

2. Ria bought 3.5 kg ladoos. The weight of ladoos in grams is _____.

Solution 2:-

The weight of ladoos = 3.5 Kg
The weight of ladoos in grams = 3.5 Kg
= 3.5×1000 g [$\because 1 \text{ Kg} = 1000 \text{ g}$]
= 3500 g

3. Shilpa's weight is 8765 g. Her weight in kilograms is _____.

Solution 3:-

The weight of Shilpa in grams = 8765 g
The weight of her in kilogram = $\frac{8765}{1000}$ Kg [$\because 1 \text{ g} = \frac{1}{1000} \text{ Kg}$]
= 8.765 Kg

4. Express in kg, hg, dag and g.

(a) 337.12 kg = _____ kg _____ hg _____ dag _____ g

(b) 0.513 kg = _____ kg _____ hg _____ dag _____ g

Solution 4:-

(a) 337.12 Kg
= 337 Kg + 0.1 Kg + 0.02 Kg
= 337 Kg + 0.1 \times 10 hg + 0.02 \times 100 dag [$\because 1 \text{ Kg} = 10 \text{ hg}$
 $\because 1 \text{ Kg} = 100 \text{ dag}$]
= 337 Kg + 1 hg + 2 dag
= 337 Kg 1 hg 2 dag

In Q4. (b) is homework.

5. Using decimal notation, express in kg.

(a) 212 kg 2 hg 5 dag 8 g = _____ kg

(b) 5 hg 8 dag 6 g = _____ kg

(c) 28 kg 7 g = _____ kg

(d) 3 dag = _____ kg

Solution 5:-

(a) $212 \text{ Kg } 2 \text{ hg } 5 \text{ dag } 8 \text{ g}$
 $= 212 \text{ Kg} + 2 \text{ hg} + 5 \text{ dag} + 8 \text{ g}$
 $= 212 \text{ Kg} + \frac{2}{10} \text{ Kg} + \frac{5}{100} \text{ Kg} + \frac{8}{1000} \text{ Kg}$
 $= 212 \text{ Kg} + 0.2 \text{ Kg} + 0.05 \text{ Kg} + 0.008 \text{ Kg}$
 $= \underline{\underline{212.258 \text{ Kg}}}$

(b) $5 \text{ hg } 8 \text{ dag } 6 \text{ g}$
 $= 5 \text{ hg} + 8 \text{ dag} + 6 \text{ g}$
 $= \frac{5}{10} \text{ Kg} + \frac{8}{100} \text{ Kg} + \frac{6}{1000} \text{ Kg}$
 $= 0.5 \text{ Kg} + 0.08 \text{ Kg} + 0.006 \text{ Kg}$
 $= \underline{\underline{0.586 \text{ Kg}}}$

(d) 3 dag
 $= \frac{3}{100} \text{ Kg}$
 $= 0.03 \text{ Kg}$

$\left[\begin{array}{l} \because 1 \text{ hg} = \frac{1}{10} \text{ Kg} \\ 1 \text{ dag} = \frac{1}{100} \text{ Kg} \\ 1 \text{ g} = \frac{1}{1000} \text{ Kg} \end{array} \right]$

$\left[\begin{array}{l} \because 1 \text{ hg} = \frac{1}{10} \text{ Kg} \\ 1 \text{ dag} = \frac{1}{100} \text{ Kg} \\ 1 \text{ g} = \frac{1}{1000} \text{ Kg} \end{array} \right]$

$\left[\because 1 \text{ dag} = \frac{1}{100} \text{ Kg} \right]$

In Q5. (c) is homework.