Cosmo School

Class-5

Subject-Mathematics

Chapter-8 (Average)

Lecture Sheet – 4 (Solution)

1. The average age of father and 3 sons is 17 years. Father's age is 38 years.
   a. What is the sum of father and 3 sons age?
   b. Find the sum of 3 sons' age.
   c. If the average age of mother and 3 sons is 15 years, what is the age of mother?

Solution:

a) Given,

Average age of father and 3 sons = 17 years

Number of quantities = 3+1 = 4

∴ The sum of father and three sons age = Average × Number of quantities

= (17 × 4) years

= 68 years

Ans : 68 years.

b) From 'a' we get,

The sum of father and three sons age = 68 years

Father's age	= 38 years
∴ Age of three sons'	= 30 years

Ans: 30 years.

c) From ‘b’ we get,

Total age of three sons’ = 30 years

Given,

Average age of mother and 3 sons = 15 years

Number of quantities = 3+1 = 4

∴ The sum of mother and three sons’ age

= Average × Number of quantities

= (15 × 4) years

= 60 years

∴ The age of mother = (60 – 30) years

= 30 years

Ans: 30 years.

2. The below table shows the heights of some students-

Name	Reza	Mina	Shiam	Uzzal	Taslima
Heights (cm)	142	144	137	146	141

a. What is the average height of the students?
b. What is the average height of 2 highest height students?
c. What is the difference between the average of 2 highest and 2 lowest height students.

Solution:

a) Sum of quantities = (142+144+137+146+141) cm

= 710 cm

Number of quantities = 5

We know,

$$\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$$

$$= \frac{710}{5} \text{ cm}$$

$$= 142 \text{ cm}$$

Ans: 142 cm.

b) 2 highest height students are Mina and Uzzal

Mina's height = 144 cm

Uzzal's height = 146 cm

Sum of quantities = (144+146) cm

= 290 cm

Number of quantities = 2

We know,

$$\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$$

$$= \frac{290}{2} \text{ cm}$$

$$= 145 \text{ cm}$$

Ans: 145 cm.

c) From 'b' we get,

The average of 2 highest height students 145 cm

2 lowest height students are Shiam and Taslima

Shiam's height = 137 cm

Taslima's height = 141 cm

Sum of quantities = (137+141) cm

= 278 cm

Number of quantities = 2

We know,

$$\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$$

$$= \frac{278}{2} \text{ cm}$$

= 139 cm

∴ The difference between the average of 2 highest and 2 lowest height students = (145 - 139) cm

= 6 cm

Ans: 6 cm.

3. Out of 25 mangoes in a basket, the weights of 4 mangoes are 397 gram, 405 gram, 388 gram and 394 gram respectively.
   a. Write the formula of average?
   b. What is the average weight of 4 mangoes?
   c. What is the total weight of 25 mangoes based on the average of 4 mangoes?

Solution:

a) $\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$

b) Sum of quantities = (397+405+388+394) g

= 1584 g

Number of quantities = 4

We know,

$$\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$$

$$= \frac{1584}{4} \text{ g}$$

$$= 396 \text{ g}$$

Ans: 396 g.

c) Weight of 1 mango = 396 g

∴ " " 25 " = (396 × 25) g

= 9900 g

Ans: 9900 g.

4. The average age of father and his three sons is 21 years. The average age of mother and 3 sons is 18 years. The age of mother is 36 years.
   a. What is the average age of 3 sons?
   b. What is the age of father?
   c. What is the average age of father, mother and 3 sons?

Solution:

a) Given,

Average age of mother and 3 sons = 18 years

Number of quantities = 3+1 = 4

∴ The sum of mother and three sons' age

= Average × Number of quantities

= (18 × 4) years

= 72 years

Total age of mother and three sons = 72 years

Mother's age = 36 years

∴ Total age of three sons = 36 years

Number of quantities = 3

We know,

$$\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$$

$= \frac{36}{3}$ years

= 12 years

Ans: 12 years.

b) Given,

Average age of father and 3 sons = 21 years

Number of quantities = 3+1 = 4

∴ The sum of father and three sons age = Average × Number of quantities

= (21 × 4) years

= 84 years

From 'a' we get,

Total age of three sons = 36 years

Now,

Total age of father and three sons = 84 years

Total age of three sons = 36 years

∴ The age of father = 48 years

Ans: 48 years.

c) From ‘a’ we get,

Father’s age = 48 years

From ‘b’ we get,

Total age of three sons = 36 years

Mother’s age = 36 years

∴ Total age of father, mother and three sons = (48+36+36) years

= 120 years

Number of quantities = 5

We know,

$$\text{Average} = \frac{\text{Sum of quantities}}{\text{Number of quantities}}$$

$$= \frac{120}{5} \text{ years}$$

= 24 years

Ans: 24 years.