AVERAGES (OR MEAN)

The average, or mean, of 5 people taking a test would be the five scores added together DIVIDED by 5.

If the five scores were 10,12,14,16 and 18 this can be written as shown below:

$$\text{Mean/Average} = \frac{10+12+14+16+18}{5}$$

$$= \frac{70}{5} = 14$$

Now read through the following examples. If in any doubt ask!

Example 1

Find the average of 2, 4, 6, 8, 10 and 12.

First **ADD** all the numbers to give the **SUM** of the numbers. Then, count the number of numbers (6).

$$\text{Average} = \frac{2+4+6+8+10+12}{6}$$

$$= \frac{42}{6} = 14$$

If you are given the average of a set of numbers, then the sum of those numbers can be worked out.

Total (sum) = average x number of numbers

Example 2

The average of four numbers is 16. What is the sum of the numbers?

Total = average x number of numbers
= 16 x 4
= 64

Example 3

A box of chocolates has a mass of 4500 g.
If the average mass of one chocolate is 125 g, how many chocolates are there in the box?

Total = average x number of chocolates

4500 = 125 x number of chocolates

$\frac{4500}{125}$ = number of chocolates

36 = number of chocolates in the box.

Example 4

The average height of a football team (11 players) is 176 cm.
If the average height without the goal keeper is 175 cm, what is the height of the goalie?

Total height of team	= 176 x 11 cm
	= 1936 cm
Total height of 10 players	= 175 x 10
	= 1750 cm
So, height of goal keeper	= 1936 - 1750
	= 186 cm

Example 5

Find the average price per kg, if 3 kg of apples costing 40p per kg are mixed with 5 kg of pears costing 50p per kg.

FIRST find the cost of the apples and the cost of the pears.

Cost of 3 kg apples	= 3 x 40p
	= 120p
Cost of 5 kg pears	= 5 x 50p
	= 250p
Total cost of apples and pears	= 250 + 120
	= 370p
Number of kilograms	= 3 + 5 = 8
Average price	$= \frac{\text{Total Price}}{\text{Number of kilograms}}$
	$= \frac{370}{8}$
Average price	= 46.25g per kg

Exercise

1. Find the average of 3, 6,9,10 and 12.

2. The average of a set of 15 numbers is 12.4, what is the sum of the numbers?

3. The average of three numbers is 115, and the average of two of them is 90. What is the value of the third number?

4. A shopkeeper sells 20 packets of crisps at 12p per packet, 15 packets of Hula Hoops at 10p per packet and 25 packets of Krunchi Puffs at 13p per packet. Find the average price of these packets to the nearest pence.

5. A greengrocer sells 4 kg of apples at 20p per kg, and 8 kg of apples at 14p per kg. What is the average price per kilogram?

6. Oranges in a box have a mass of 2400 g. If the average mass of an orange is 24 g, how many oranges are there in the box?

7. The average of four numbers is 25. When a fifth number is added the average then becomes 24. What is the value of the fifth number?

8. A boy buys 2 packets of mint flavoured chewing gum at 10p per packet and 3 packets of strawberry flavoured at 15p per packet. What is the average price of these packets?

ANSWERS

1. 8

2. 186

3. 165

4. 20 X 12 = 240
   15 X 10 = 150

5. $25 \times 13 = \frac{325}{175} = \text{sum}$

   $\text{Average} = \frac{192}{12} = 16\text{p}$

6. 100 Oranges

7. 20

8. 13p