How to Find the Mean

The mean is just the **average** of the numbers.

It is easy to calculate: **add up** all the numbers, then **divide by how many** numbers there are.

In other words it is the **sum** divided by the **count**.

Example 1: What is the Mean of these numbers?

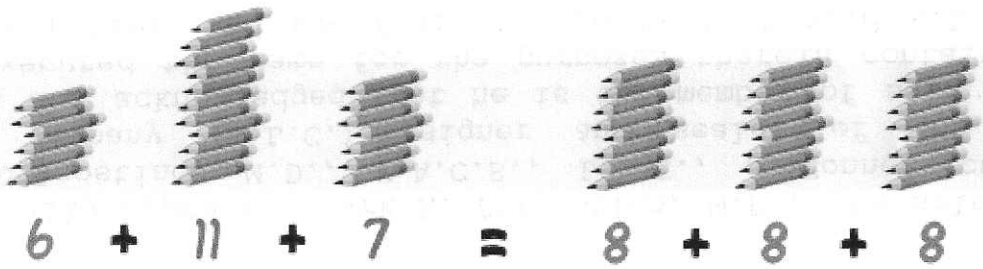
6, 11, 7

- Add the numbers: **6 + 11 + 7 = 24**
- Divide by *how many* numbers (there are 3 numbers): **24 / 3 = 8**

The Mean is 8

Why Does This Work?

It is because 6, 11 and 7 added together is the same as 3 lots of 8:



It is like you are "flattening out" the numbers

Example 2: Look at these numbers:

3, 7, 5, 13, 20, 23, 39, 23, 40, 23, 14, 12, 56, 23, 29

The sum of these numbers is 330

There are fifteen numbers.

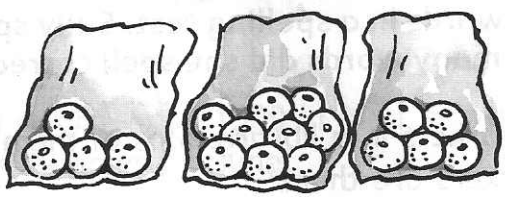
The mean is equal to 330 / 15 = 22

The mean of the above numbers is 22

3 Average

1 Average = mean = $\frac{\text{sum}}{\text{count}}$

These bags do not have the same number of oranges.



If the oranges are rearranged so that the bags have the same number of oranges, how many oranges will there be in each bag?

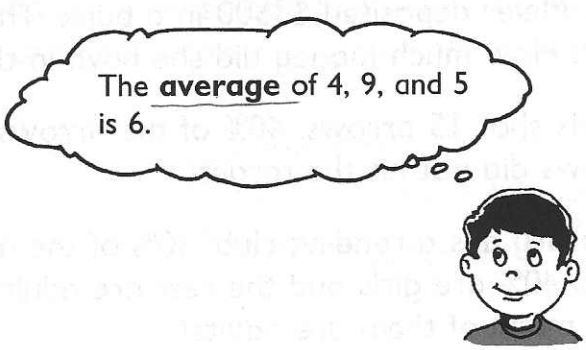
$4 + 9 + 5 = 18$

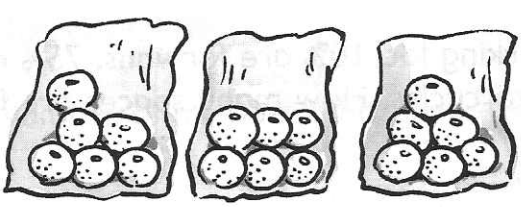
There are 18 oranges altogether.

$18 \div 3 = 6$

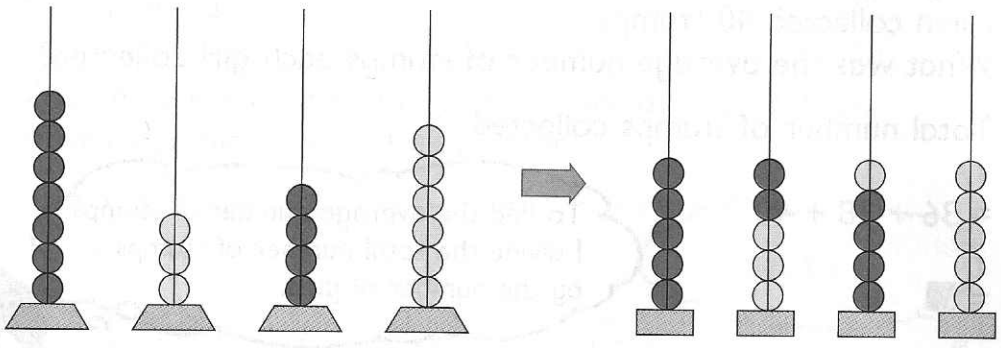
There will be 6 oranges in each bag.

Average $= \frac{(4+9+5)}{3} = 6$





1.



What is the average of 7, 3, 4 and 6?

Average = $\frac{7+3+4+6}{4}$

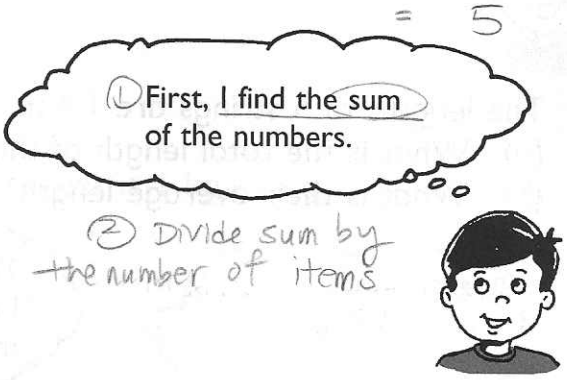
$= 5$

$7 + 3 + 4 + 6 = 20$

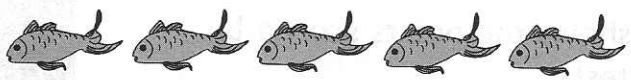
The sum is 20.

$20 \div 4 = \blacksquare$ 5

The average is ■. 5



2. This picture graph shows the number of fish caught by 3 boys. On the average, how many fish did each boy catch?

Ahmad	
Chandran	
Jinfa	

$5 + 7 + 3 = 15$

The 3 boys caught 15 fish altogether.

$15 \div 3 = \blacksquare$ 5

5

On the average, each boy caught ■ fish.

3. Sally collected 36 stamps, Mary collected 38 stamps and Lilian collected 40 stamps.
What was the average number of stamps each girl collected?

Total number of stamps collected

= 36 + 38 + 40 = 74 + 40

= ■ 114

Average number of stamps collected = ■ $\frac{114}{3}$ = 38

Workbook Exercise 25

4. The lengths of 5 strings are 1.4 m, 1.8 m, 2 m, 2.6 m and 3.2 m.
(a) What is the total length of the 5 strings? 11 m
(b) What is their average length?

Avg = $\frac{11\text{ m}}{5\text{ strings}}$ = 2.2 m per string

2
1.4
1.8
2
2.6
+ 3.2
11.0

5. The table shows the points scored by Ron for 4 tests.

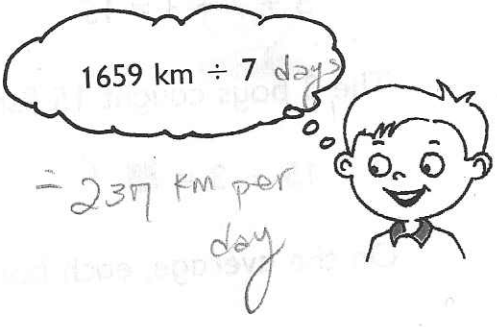
Test A	68
Test B	76
Test C	78
Test D	88

(a) What is his total score for the 4 tests? 310
(b) What is his average score? $\frac{310}{4\text{ tests}}$ = 77.5 pts per test

3
310

Workbook Exercise 26

6. A taxi driver traveled a total distance of 1659 km in 7 days. Find the average distance he traveled per day.



Avg = $\frac{\text{sum}}{\#\text{ in the list}}$ =>

7. Jesse's average score for 5 tests is 74.6.
Find his total score.

$74.6 = \frac{\text{sum}}{5}$

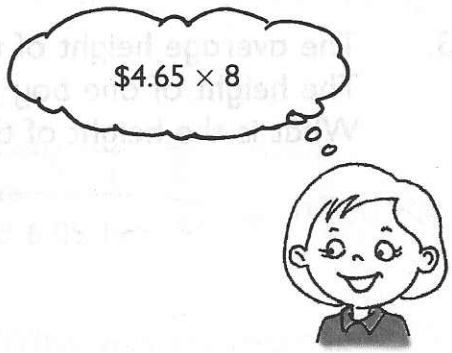
Sum = 5(74.6) = 373

8. Warner spent an average of $4.65 per day for 8 days.
How much did he spend altogether?

Avg => $4.65 = $\frac{\text{Total (Sum)}}{8 \text{ days}}$

$4.65 (8 days) = sum

$37.2 spend in 8 days = sum



Workbook Exercise 27

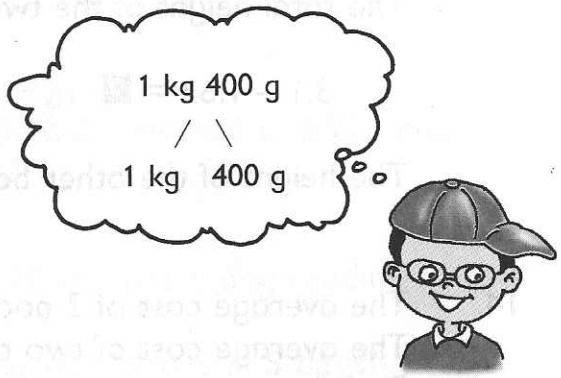
9. The average weight of 3 packages is 1 kg 400 g.
Find their total weight.

Total weight = 1 kg 400 g × 3

= ■ kg ■ g

3 1200

= 4 kg 200 g



10. The total weight of 4 packages is 5 kg 200 g.
Find their average weight.

Avg = $\frac{5 \text{ kg } 200 \text{ g}}{4 \text{ pckgs}}$

Average weight = 5 kg 200 g ÷ 4

4

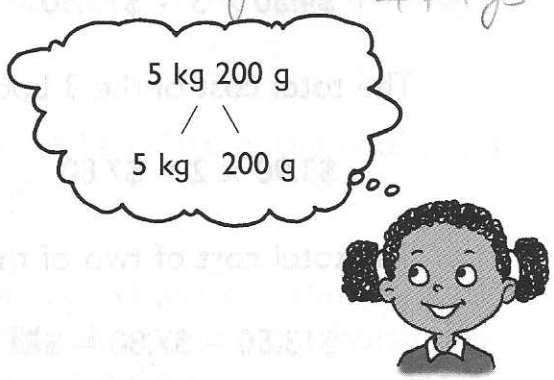
= ■ kg ■ g

1.25 50

.25 kg * $\frac{1000 \text{ g}}{1 \text{ kg}}$ = 250 g

= 1 kg 250 + 50 g

= 1 kg + 300 g



11. David took 15 minutes 20 seconds to cycle a distance of 2 km. On the average, how long did he take to cycle 1 km?

Since 15 min = 30 sec

Avg = $\frac{15 \text{ min } 20 \text{ sec}}{2 \text{ km}}$ = 7.5 min 10 sec = 7 min 30 sec + 10 sec

= 7 min 40 sec

12. Peter cycled from his house to the beach which was 3 km away. He took an average of 2 minutes 45 seconds to cycle 1 km. How long did the journey take?

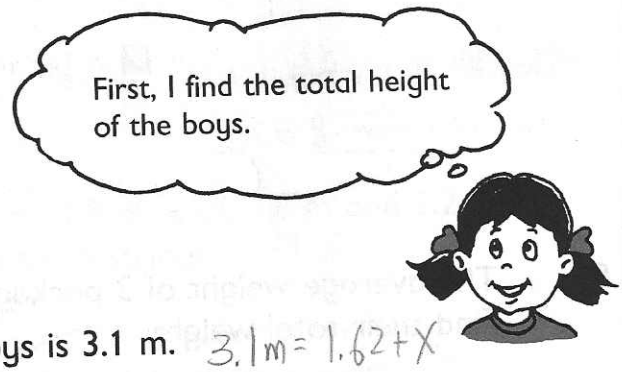
avg = 2 min 45 sec = $\frac{\text{total time}}{3 \text{ km}}$ 2 min 15 sec = 135 sec

2 min 45 sec × 3 km = 6 min × 135 sec = 612 min 15 sec = 8 min 15 sec

Workbook Exercises 28 & 29

13. The average height of two boys is 1.55 m.
The height of one boy is 1.62 m.
What is the height of the other boy? (let X = height of other boy)

Avg ⇒ 1.55m = $\frac{1.62\text{m} + X}{2}$



1.55 × 2 = 3.10

The total height of the two boys is 3.1 m. 3.1m = 1.62 + X

3.1 − 1.62 = ■1.48 = X

The height of the other boy is ■ m. 1.48 m

14. The average cost of 3 books is $4.50. ($3.90)2 + X ⇒ 3
The average cost of two of the books is $3.90.
Find the cost of the third book. (let y = cost of 3rd book)

$4.50 × 3 = $13.50

The total cost of the 3 books is $13.50. = ($3.90) + $3.90 + X
= 2($3.90) + X

$3.90 × 2 = $7.80

The total cost of two of the books is $7.80. + X = $13.50
−7.80 −7.80

$13.50 − $7.80 = $■5.7 X = 5.7

The cost of the third book is $■.5.7

Workbook Exercise 30

PRACTICE 3A

1. Find the average of each of the following:
   (a) 12.5, 36.2, 30.4 and 26.1
   (b) \$1.35, \$4.82, \$3.05, \$2.70 and \$2.13
   (c) 3.5 kg, 3.8 kg, 4.1 kg and 5 kg
   (d) 4.6 ℓ, 6.4 ℓ, 5.8 ℓ and 3.8 ℓ
   (e) 2.62 m, 2.08 m, 3.9 m and 0.96 m
   (f) 12.2 km, 25.6 km, 9.5 km and 30.3 km
   (g) 4.81 gal, 3.52 gal, 3.59 gal and 2 gal
   (h) 9.5 in., 7.25 in., 11.9 in., 4.11 in. and 6.09 in.

2. Rowley traveled 5460 km in 3 months. What was the average distance he traveled per month?

3. A man has 6 packages. Their average weight is 18 kg. Find the total weight of the 6 packages.

4. 4 people had lunch together. They spent an average of \$3.75 each. What was the total cost of the lunch?

5. On the average, Violet spent 1 hour 20 minutes a day reading storybooks.
   How much time did she spend reading storybooks in 5 days?

6. Sam used 10 ℓ 275 ml of gas in 3 days. On the average, how much gas did he use per day?

7. The average cost of 2 storybooks was \$2.45. One of the books cost \$2.80. Find the cost of the other book.

8. An average of 145 people visited a 4-day exhibition in the first 3 days. Another 205 people visited the exhibition on the fourth day. What is the average number of visitors per day?