

## Reverse Mean

To be able to find the missing value

# MINI WB

Find the **Mean Average** for each the sets A-D.  
Find the missing value for E & F.

$$\text{Mean} = \frac{\text{sum of all values}}{\text{total number of values}}$$

Demo

A 50 p 50 p 20 p

Mean = \_\_\_\_ p

B 10 p 40 p 25 p 5 p

Mean = \_\_\_\_ p

C 20 p £1 40 p 30 p 60 p

Mean = \_\_\_\_ p

D 6 7 7 3 10 9

Mean =

★ E 15 ? 7

Mean = 12

★ F 0 9 ? 17 5 11

Mean = 9

# MINI WB

Find the **Mean Average** for each the sets A-D.  
Find the missing value for E & F.

$$\text{Mean} = \frac{\text{sum of all values}}{\text{total number of values}}$$

Demo

A 50 p 50 p 20 p Mean = 40 p

B 10 p 40 p 25 p 5 p Mean = 20 p

C 20 p £1 40 p 30 p 60 p Mean = 50 p

D 6 7 7 3 10 9 Mean = 7

E 15 14 7 Mean = 12

F 0 9 12 17 5 11 Mean = 9

## Activate

Here are the results for the number of homeworks five students in this class have completed. Mr. Smith has forgotten the last one:

5, 8, 4, 3, ?

Mr. McGuinness knows the average is 6.

What is the missing number?

## Activate

Here are the results for the number of homeworks five students in this class have completed. Mr. Smith has forgotten the last one:

5, 8, 4, 3, ?

Mr. McGuinness knows the average is 6.

What is the missing number?

$$\frac{5 + 8 + 4 + 3 + x}{5} = 6$$

$$\text{Total result} = 6 \times 5 = 30$$

$$x = 30 - 5 - 8 - 4 - 3 = \underline{\underline{10}}$$

2, 7, 4, 2, ?

The mean is 4.  
What is the missing  
number?

2, ?, 4, 3, 11, 5

The mean is 6.  
What is the missing  
number?

5, 7, 9, 2, ?, 8, 10

The mean is 8.  
What is the missing  
number?

Demonstrate

Mr. Smith chooses  
five cards with an  
mean of 5. What is  
the fifth card?

9 1 3 5  
?

Mr. Smith chooses  
five cards with an  
mean of 4.2. What is  
the fifth card?

3 3 5 5  
?

You have seven blank  
cards. Write a number  
on each so that the  
mean will be 5

2, 7, 4, 2, ?

The mean is 4.  
What is the missing  
number?

**5**

2, ?, 4, 3, 11, 5

The mean is 6.  
What is the missing  
number?

**11**

5, 7, 9, 2, ?, 8, 10

The mean is 8.  
What is the missing  
number?

**Answer**

**15**

Mr. Smith chooses  
five cards with an  
mean of 5. What is  
the fifth card?

9 1 3 5

?

**7**

Mr. Smith chooses  
five cards with an  
mean of 4.2. What is  
the fifth card?

3 3 5 5

?

**5**

You have seven blank  
cards. Write a number  
on each so that the  
mean will be 5

## Example 1:

4 people took a test and had a mean score of 24,  
a fifth person took the test and the mean score was now 25.  
What score did the fifth person get on the test?

$$\begin{aligned}\text{Total score for the 4 people} &= 4 \times 24 \\ &= 96\end{aligned}$$

$$\begin{aligned}\text{Total score for the 5 people} &= 5 \times 25 \\ &= 125\end{aligned}$$

$$\begin{aligned}\text{The 5}^{\text{th}} \text{ person scored} &= 125 - 96 \\ &= 29\end{aligned}$$



## Example 2:

9 people took a test and had a mean score of 11, a tenth person took the test and the mean score was now 15.

What score did this tenth person get on the test?

| <b>People</b> | <b>Mean</b> | <b>Total</b> |
|---------------|-------------|--------------|
|               |             |              |
|               |             |              |
|               |             |              |

## Example 2:

9 people took a test and had a mean score of 11, a tenth person took the test and the mean score was now 15.

What score did this tenth person get on the test?

| People  |          | Mean |     | Total |
|---|----------|------|-----|-------|
| 9   | $\times$ | 11   | $=$ | 99    |
| 10  | $\times$ | 15   | $=$ | 150   |
| $10^{\text{th}} \text{ person score} = 150 - 99 = \underline{\underline{51}}$ |          |      |     |       |

## Demonstrate 1

1. 4 people had a mean score of **21**, after a fifth person took the test the mean was **25**. What was this fifth person's score?

| People                          | Mean | Total |
|---------------------------------|------|-------|
| 4                               | 21   |       |
| 5                               | 25   |       |
| 5 <sup>th</sup> person's score: |      |       |

2. 5 people had a mean score of **20**, after a sixth person took the test the mean was **24**. What was this sixth person's score?

| People                          | Mean | Total |
|---------------------------------|------|-------|
|                                 |      |       |
|                                 |      |       |
| 6 <sup>th</sup> person's score: |      |       |

3. 9 people had a mean score of **11**, after a tenth person took the test the mean was **12**. What was this tenth person's score?

| People                           | Mean | Total |
|----------------------------------|------|-------|
|                                  |      |       |
|                                  |      |       |
| 10 <sup>th</sup> person's score: |      |       |

4. 6 people had a mean score of **21**, after a seventh person took the test the mean was **24.3**. What was this fifth person's score?

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Demonstrate 1

Answer

1. 4 people had a mean score of **21**, after a fifth person took the test the mean was **25**. What was this fifth person's score?

| People  |   | Mean |   | Total |
|---|---|------|---|-------|
| 4   | x | 21   | = | 84    |
| 5   | x | 25   | = | 125   |
| 5 <sup>th</sup> person's score: $125 - 84 = 41$ |   |      |   |       |

2. 5 people had a mean score of **20**, after a sixth person took the test the mean was **24**. What was this sixth person's score?

| People   |   | Mean |   | Total |
|--|---|------|---|-------|
| 5  | x | 20   | = | 100   |
| 6  | x | 24   | = | 144   |
| 6 <sup>th</sup> person's score: $144 - 100 = 44$ |   |      |   |       |

3. 9 people had a mean score of **11**, after a tenth person took the test the mean was **12**. What was this tenth person's score?

| People   |   | Mean |   | Total |
|--|---|------|---|-------|
| 9  | x | 11   | = | 99    |
| 10   | x | 12   | = | 120   |
| 10 <sup>th</sup> person's score: $120 - 99 = 21$ |   |      |   |       |

4. 6 people had a mean score of **21**, after a seventh person took the test the mean was **24.3**. What was this fifth person's score?

| People  |   | Mean |   | total |
|---|---|------|---|-------|
| 6   | x | 21   | = | 126   |
| 7   | x | 24.3 | = | 170.1 |
| 7 <sup>th</sup> person = $170.1 - 126 = 44.1$ |   |      |   |       |

### Example 3:

20 Students in class A did a maths exam.  
15 students in class B did the same exam.

The mean mark for the 20 students in class A was 41.  
The mean mark for all 35 students was 40.

Work out the mean score from class B

### Example 3:

20 Students in class A did a maths exam.  
15 students in class B did the same exam.

The mean mark for the 20 students in class A was 41.  
The mean mark for all 35 students was 40.

Work out the mean score from class B

|              | <b>Number of students</b> |   | <b>Mean</b> |   | <b>Total</b>          |
|--------------|---------------------------|---|-------------|---|-----------------------|
| Both Classes | 35                        | × | 40          | = | 1400                  |
| Class A      | 20                        | × | 41          | = | 820                   |
| Class B      | 15                        |   | ?           |   | $1400 - 820 =$<br>580 |

**Example 3:**

20 Students in class A did a maths exam.  
15 students in class B did the same exam.

The mean mark for the 20 students in class A was 41.  
The mean mark for all 35 students was 40.

Work out the mean score from class B

|              | <b>Number of students</b> |          | <b>Mean</b> |          | <b>Total</b>               |
|--------------|---------------------------|----------|-------------|----------|----------------------------|
| Both Classes | <b>35</b>                 | <b>×</b> | <b>40</b>   | <b>=</b> | <b>1400</b>                |
| Class A      | <b>20</b>                 | <b>×</b> | <b>41</b>   | <b>=</b> | <b>820</b>                 |
| Class B      | <b>15</b>                 |          | <b>?</b>    |          | 1400 – 820 =<br><b>580</b> |

**Mean score from Class B:**

$$\frac{\textit{Total}}{\textit{number of students}} = \frac{580}{15} = 38.67$$

a) Set A a class of 25 did an exam and their mean score was 42. Set A and B consists of 50 pupils. The mean score for both sets was 37. What was set B's mean score?

|           | Number of students | Mean | Total |
|-----------|--------------------|------|-------|
| Both Sets |                    |      |       |
| Class A   |                    |      |       |
| Class B   |                    |      |       |

## Demonstrate 2

b) The mean for a test for 27 girls was 10. There are 23 boys. Their mean score was 12. What was the mean score of all the pupils together?

|            | Number of students | Mean | Total |
|------------|--------------------|------|-------|
| All pupils |                    |      |       |
| Girls      |                    |      |       |
| Boys       |                    |      |       |



c) The mean for a test for 9 girls was 10.  
There are 20 students in total.  
The total class mean score was 8.  
What was the mean score of all the boys?

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Demonstrate 2

d) 25 students in class A did a science exam.  
30 students in class B did the same science exam.

The mean mark for the 25 students in class A is 67.8  
The mean mark for all the 55 students is 72.0

Work out the mean mark for the students in class B.

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

a) Set A a class of 25 did an exam and their mean score was 42. Set A and B consists of 50 pupils. The mean score for both sets was 37.

What was set B's mean score?

|       | Student | mean        | Total score |
|-------|---------|-------------|-------------|
| Total | 50      | $\times 37$ | $= 1850$    |
| A     | 25      | $\times 42$ | $= 1050$    |
| B     | 25      | ?           | 800         |

$$\text{mean for B} = \frac{800}{25} = \underline{\underline{32}}$$

## Demonstrate 2

b) The mean for a test for 27 girls was 10. There are 23 boys. Their mean score was 12. What was the mean score of all the pupils together?

Answer

|       | Number         | mean        | Total                |
|-------|----------------|-------------|----------------------|
| Total | $27+23=$<br>50 | ?           | $270+276$<br>$= 546$ |
| girls | 27             | $\times 10$ | $= 270$              |
| Boys  | 23             | $\times 12$ | $= 276$              |

$$\text{mean score for all pupils: } \frac{546}{50} = \underline{\underline{10.92}}$$

c) The mean for a test for 9 girls was 10.  
 There are 20 students in total.  
 The total class mean score was 8.  
 What was the mean score of all the boys?

|       | Number | mean        | total            |
|-------|--------|-------------|------------------|
| Total | 20     | $\times 8$  | $= 160$          |
| girls | 9      | $\times 10$ | $= 90$           |
| Boys  | 11     | ?           | $160 - 90 = 170$ |

mean for Boys  $\frac{170}{11} = \underline{\underline{15.45}}$

## Demonstrate 2

d) 25 students in class A did a science exam. **Answer**  
 30 students in class B did the same science exam.

The mean mark for the 25 students in class A is 67.8  
 The mean mark for all the 55 students is 72.0

Work out the mean mark for the students in class B.

|       | Number | mean          | total                |
|-------|--------|---------------|----------------------|
| Total | 55     | $\times 72$   | $= 3960$             |
| A     | 25     | $\times 67.8$ | $= 1695$             |
| B     | 30     | ?             | $3960 - 1695 = 2265$ |

mean for B:  $\frac{2265}{30} = \underline{\underline{75.5}}$