

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?

People	Mean	Total

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 th 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 th 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 th 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	\times	21	=	84
5	\times	25	=	125
5 th 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	\times	20	=	100
6	\times	24	=	144
6 th 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	\times	11	=	99
10	\times	12	=	120
10 th 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	\times	21	=	126
7	\times	24.3	=	170.1
7 th 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

	Number of students		Mean		Total
Both Classes	35	×	40	=	1400
Class A	20	×	41	=	820
Class B	15		?		$1400 - 820 =$ 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

	Number of students		Mean		Total
Both Classes	35	×	40	=	1400
Class A	20	×	41	=	820
Class B	15		?		$1400 - 820 =$ 580

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	$27+23=$ 50	?	$270+276$ $= 546$
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: $\frac{2265}{30} = \underline{\underline{75.5}}$