## Questions on the Mean

## Solutions

Q1.

Steph's weight in kilograms is $2 x+9$
Kyle's weight in kilograms is $4 x-7$
Write down an expression, in terms of $x$, for the mean of their weights.

$3 x+1$
kilograms
(Total for question = 2 marks)

## Q2.

There are 15 children at a birthday party.
The mean age of the 15 children is 7 years.
9 of the 15 children are boys.
The mean age of the boys is 5 years.
Work out the mean age of the girls.

$$
\begin{aligned}
& \text { Total ages }=15 \times 7=105 \\
& \text { Total boys ages }=9 \times 5=\frac{45}{60}- \\
& \text { Total girls ages }
\end{aligned}
$$

$$
\text { Girls mean }=\frac{60}{6}=10
$$

$\qquad$ years
(Total for question = 3 marks)
Qu.

50 students each did a mathematics test.
The mean score for these 50 students was 8.4

$$
\begin{aligned}
& \text { Total } 50 \times 8.4=420 \\
& \text { Total boys } 30 \times 8.25=\frac{247.5}{172.5} \\
&= \\
& \text { Total girls } \\
& \text { girls' mean }=\frac{172.5}{20} \\
&=8.625
\end{aligned}
$$

There were 30 boys.
The mean score for these 30 boys was 8.25
Work out the mean score for the girls.

Qu.

23 girls have a mean height of 153 cm . 17 boys have a mean height of 165 cm .

Work out the mean height of all 40 children.

Total for girls $23 \times 153=3519$
Total for bogs $17 \times 165=\frac{2805}{6324}+$
Total for group
mean for group $=\frac{6324}{40}$
$158.1 \ldots \mathrm{~cm}$
(Total for Question is $\mathbf{3}$ marks)

Q5.

The table gives information about the time it took each of 80 children to do a jigsaw puzzle.

|  | Number of children | Mean time (minutes) |
| :--- | :---: | :---: |
| Boys | 32 | 32.4 |
| Girls | 48 | 28.4 |
|  |  |  |

Work out the mean time for all 80 children.

$$
\text { mean for group }=\frac{2400}{80}
$$

Qb.

Alan works in a gym.
One week he recorded the number of people who visited the gym each day.
For Monday to Friday, the mean number of people per day was 98 For the whole week, the mean number of people per day was 114

On Saturday, 162 people visited the gym.
Work out the number of people who visited the gym on Sunday.
whole week total

$$
\begin{aligned}
& =7 \times 114 \\
& =798
\end{aligned}
$$

$$
\text { Sun } 798-652=146
$$

$$
\begin{aligned}
& \text { Mon-Fri total } 98 \times 5=490 \\
& \text { out } \\
& \frac{162}{652}
\end{aligned}
$$

Q7.

There are 10 boys and 20 girls in a class. The class has a test.

The mean mark for all the class is 60
The mean mark for the girls is 54
Work out the mean mark for the boys.

$$
\begin{aligned}
& \text { Total for class }=30 \times 60=1800 \\
& \text { Total for girls }=20 \times 54=\frac{1080}{720} \\
& \text { Total for boys }
\end{aligned}
$$

$$
\text { Mean for boys }=\frac{720}{10}=72
$$

$$
72
$$

(Total for question = 3 marks)
QB.

There are 18 packets of sweets and 12 boxes of sweets in a carton.
The mean number of sweets in all the 30 packets and boxes is 14
The mean number of sweets in the 18 packets is 10
Work out the mean number of sweets in the boxes.

$$
\begin{aligned}
& \text { Total } 30 \times 14=420 \\
& \text { Sweets } \\
& \text { Packets } 18 \times 10=\frac{180}{\text { Total }} \\
& \text { Boxes } \\
& \text { Total }
\end{aligned}
$$

$$
\text { Boxes mean }=\frac{240}{12}=20
$$

20
(Total for question = 3 marks)
Q9.

Ed has 4 cards.
There is a number on each card.


The mean of the 4 numbers on Ed's cards is 10 Total $=4 \times 10=40$
Work out the number on the 4th card.

$$
12+6+15=33
$$

$$
40-33=7
$$

$?=7$

Q10.

* Tina went on a cycling holiday.

For the first 5 days, Tina cycled a mean distance of 55 kilometres per day.
On the sixth day, Tina cycled 50 kilometres.
Andy says,
"for all 6 days, the mean distance that Tina cycled per day was 52.5 kilometres".

Is Andy correct?
You must show your working.

$$
\text { No } \begin{aligned}
& \text { Total fur } 5 \text { days }=55 \times 5=275 \\
& 6^{\text {ty }} \text { day } \\
& \text { Total for } 6 \text { days } \\
& \frac{505}{325}
\end{aligned}
$$

$$
\text { Mean }=\frac{325}{6}=54.17 \mathrm{kn} \text { not } \underset{\text { (Total for question }}{52.5 \mathrm{Km}}
$$

(Total for question = 4 marks)
Q11.

There are 10 boys and 20 girls in Mrs Brook's class. Mrs Brook gave all the class a test.

The mean mark for all the class is 60
The mean mark for the girls is 56
Work out the mean mark for the boys.
Class total $30 \times 60=1800$
Girls total $20 \times 56=\frac{1120}{680}$
Boys total

$$
\text { Boys mean }=\frac{680}{10}=68
$$

(Total for Question is $\mathbf{3}$ marks)

Q12.

Alex is $x \mathrm{~cm}$ tall.
Bob is 10 cm taller than Alex.
Cath is 4 cm shorter than Alex.
Write an expression, in terms of $x$, for the mean of their heights in centimetres.

$$
\begin{aligned}
& \frac{x+x+10+x-4}{3} \\
& =\frac{3 x+6}{3}=x+2
\end{aligned}
$$

Q13.

Ken is $x$ years old.
Liam is $(x+4)$ years old.
Tina is $3 x$ years old.
Write an expression, in terms of $x$, for the mean of their ages.
$x+x+4+3 x$
3
$=\frac{5 x+4}{3}$
(Total for question = $\mathbf{2}$ marks)

## Q14.

Hertford Juniors is a basketball team.

At the end of 10 games, their mean score is 35 points per game.
At the end of 11 games, their mean score has gone down to 33 points per game.

How many points did the team score in the 11 th game?

$$
\begin{aligned}
& \text { Total for } 11 \text { games }=33 \times 11=363 \\
& \text { Total for } 10 \text { games }=35 \times 10=\frac{350}{13}- \\
& 11^{\text {ti game }}
\end{aligned}
$$

(Total for Question is $\mathbf{3}$ marks)
Q15.

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

$$
\begin{aligned}
& \text { Total Marks } 55 \times 72=3960 \\
& \text { for } A \text { and } B \\
& \text { Total } A \quad 25 \times 67.8=1695 \\
& \text { Total } B=2265
\end{aligned}
$$

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

$$
\text { Mean for } B=\frac{2265}{30}=75.5
$$

$$
75 \cdot 5
$$

