Name: _____

Solutions by
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# GCSE (9 - 1)

## Reverse Mean

**Information**

The total marks for this paper is 44

The marks for each question are shown in brackets

*– use this as a guide as to how much time to spend on each question.*

**Total Marks**

**Advice**

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

**Instructions**

Answer all questions.

Answer the questions in the spaces provided

**– there may be more space than you need.**

**You must show all your working.**

Diagrams are NOT accurately drawn, unless otherwise indicated.

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**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

**1** 10 Students in class A did a maths exam.

15 students in class B did the same exam.

The mean mark for the 10 students in class A was 43.

The mean mark for all 25 students was 40.

Work out the mean score from class B

Class A: $10 \times 43 = 430$ (Total)

All students: $25 \times 40 = 1000$ (Total)

Class B Total: $1000 - 430 = 570$

$570 \div 15 = 38$

$$15 \overline{)570} = 38$$

38

..... **(3 marks)**

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**2** John has eight horses. They have a mean height of 160cm.

John buys an ninth horse. The height of this horse is 142cm.

Find the mean height of all nine horses.

$160 \times 8 = 1280$ cm (Total height of 8 horses)

$1280 + 142 = 1422$

$1422 \div 9 = 158$

158 ..... cm

**(3 marks)**

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**3** There are 10 boys and 10 girls in a class. (20 in class)

The class has a test.

The mean mark for all the class is 60 x 20 = 1200

The mean mark for the girls is 54

Work out the mean mark for the boys.

Girls Total = 54 x 10 = 540

Boys Total = 1200 - 540 = 660

Boys Mean = 660 ÷ 10 = 66

66

.....

**(3 marks)**

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**4** The mean of these numbers is seven.

What is the missing number?

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

7 numbers so total = 7 x 7 = 49

5+7+9+2+8+10 = 41

49 - 41 = 8

8

.....

**(2 marks)**

**5** 8 girls have a mean score of 45%.

There are 20 students in total. → 12 boys

The total class mean score was 40%.

What was the mean score of the boys?

$8 \times 45 = 360$ (Girls Total)

$20 \times 40 = 800$ (Class Total)

$800 - 360 = 440$ (Boys Total)

$440 \div 12 = 36.\dot{6}$

36.7 %

**(3 marks)**

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**6** These five cards are arranged from smallest to largest.

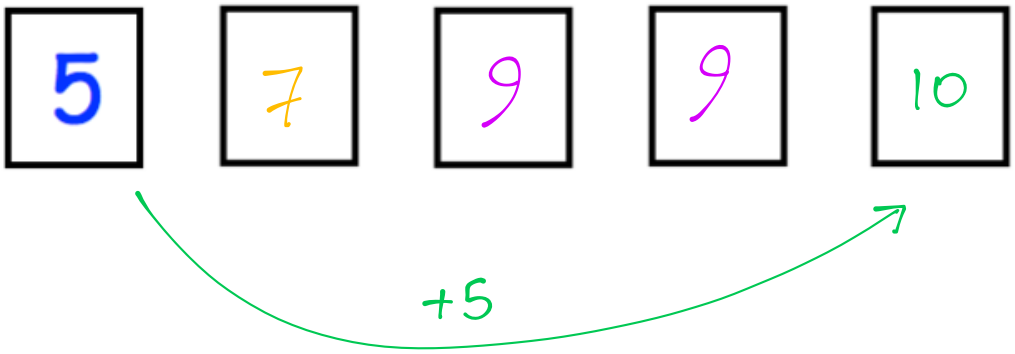
The range of the cards is 5.

The median and mode of the cards is 9.

The mean of the cards is 8. → $8 \times 5 = 40$

$40 - (5 + 9 + 9 + 10) = 7$

Work out the 4 missing numbers.




5, 7, 9, 9, 10

**(3 marks)**

**7** George got an overall mean score of 58% from these five subjects.

What was his score for Art?

| French | Maths | History | Geography | Art |
|---|---|---|---|---|
| 64% | 62% | 58% | 46% | 60% |

Overall Total = 58 x 5 = 290

64 + 62 + 58 + 46 = 230

290 - 230 = 60%

60 ..... %

**(3 marks)**

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**8** The mean of eight numbers is 46

The mean of three of the numbers is 32

What is the mean of the other five numbers?

Total = 46 x 8 = 368

Total of three numbers = 32 x 3 = 96

368 - 96 = 272 (Total of the other five numbers)

272 ÷ 5 = 54.4

..... 

**(3 marks)**

**9** The mean of ten numbers is 48.

If one of the numbers is 50, what is the mean of the other nine?

Give your answer to 1 decimal place.

Total of ten numbers = 48 x 10 = 480

480 - 50 = 430

430 ÷ 9 = 47.7̇

47.8

**(3 marks)**

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**10** The mean of twenty numbers is 8.

If four of those numbers have a mean of 10 what is the mean of the other sixteen numbers?

Give your answer to 1 decimal place.

Total of twenty numbers = 8 x 20 = 160

Total of four numbers = 10 x 4 = 40

160 - 40 = 120

120 ÷ 16 = 7.5

7.5

**(3 marks)**

**11** John has scored a mean of 0.4 goals in the last 10 football matches for the B team.

His mean score must be 0.5 or more for him to be chosen to play for the A team.

Find the number of goals that he must score in the next match if he is to be chosen for the A team.

10 football matches = 0·4 x 10 = 4 goals

11 football matches = 0·5 x 11 = 5·5 goals

He must score at least 2 goals in the next match.

2

**(3 marks)**

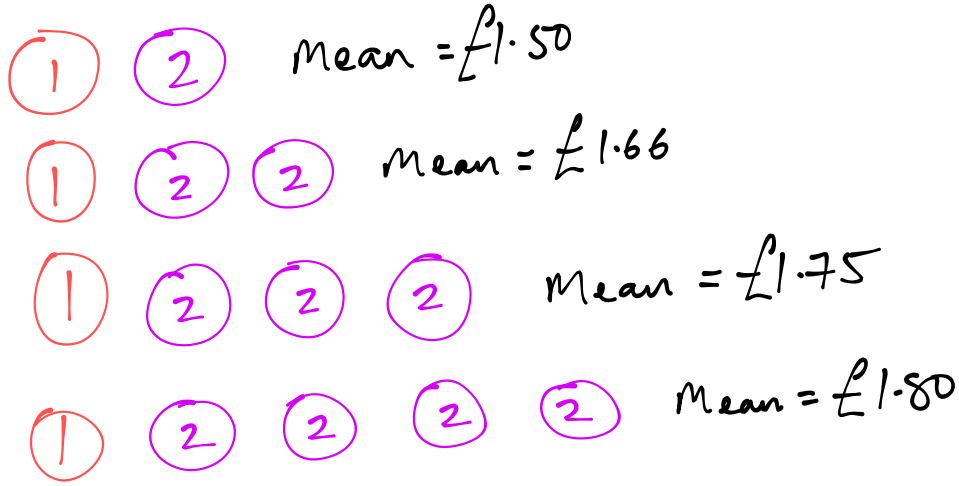
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**12** Mary has a number of £1 and £2 coins.

The mean value of all of her coins is £1.80.

What is the smallest number of £1 and £2 coins Mary could have?

You must show your working.




£1 coins 1

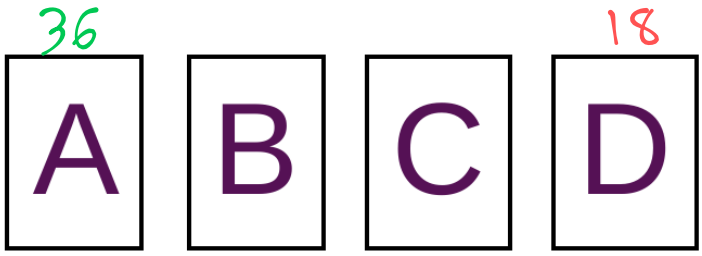
£2 coins 4

**(4 marks)**

**13** The mean of the four cards is 22.

A, B and C add together to make 70.
A is twice the size of D.
The other two cards are the same number.

Find the value of each of the cards.




Four card total = 22 x 4 = 88

88 - 70 = 18

18 x 2 = 36

88 - (18 + 36) = 34

34 ÷ 2 = 17

A = 36
B = 17
C = 17
D = 18

**(4 marks)**

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**14** The mean age of students in a college is 19.

Calculate how many twenty year olds there are at the college.

| Age (Years) | Frequency | |
|---|---|---|
| 17 | 2 | x 17 = 34 |
| 18 | 1 | x 18 = 18 |
| 19 | 7 | x 19 = 133 |
| 20 | x | x 20 = 20x |

Total = 10 + x

185 + 20x

$$\frac{185+20x}{10+x} = 19$$

$$185 + 20x = 19(10 + x)$$

$$185 + 20x = 190 + 19x$$

$$20x = 5 + 19x$$

$x = 5$

**(4 marks)**