FULL MODEL ANSWERS

Q1. NON-CALCULATOR

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.

$$\text{Mean} = \frac{\text{Total}}{\text{Number of values}}$$

Total for whole class $= 60 \times (10+20)$
$= 1800$

Total for girls $= 54 \times 20$
$= 1080$

Mean for boys $= \frac{\text{Total for boys}}{\text{Number of boys}}$

$= \frac{1800 - 1080}{10}$

...................72...................

(Total for question = 3 marks)

Q2. NON-CALCULATOR

20 men, 10 women and 10 children are in a competition.

The mean score for the women is 15.6. The mean score for the children is 9.2

Kevin says that the mean score for all 40 people is 11.2

$$\text{Mean} = \frac{\text{Total}}{\text{Number of values}}$$

(a) Work out the mean score for the men.

Total for whole class $= 11.2 \times 40$
$= 448$

Total for women $= 15.6 \times 10$
$= 156$

Total for children $= 9.2 \times 10$
$= 92$

Mean for men $= \frac{\text{Total for men}}{\text{Number of men}}$

$= \frac{448 - 156 - 92}{20}$

...................10...................

(3)

Kevin was wrong. The mean score for all 40 people was actually 11.15

(b) How does this affect the mean score for the men?

The total score for men will be lower, so the mean score for men will also be lower.

(1)

(Total for question = 4 marks)

Q3. NON-CALCULATOR

Mr Brown gives his class a test.
The 10 girls in the class get a mean mark of 70%. The 15 boys in the class get a mean mark of 80%

Nick says that because the mean of 70 and 80 is 75 then the mean mark for the whole class in the test is 75%

Nick is not correct. Is the correct mean mark less than or greater than 75%? You must justify your answer.

The mean will be greater than 75% since there are more boys and their mean is higher than 75%.

(Total for question = 2 marks)

Q4. NON-CALCULATOR

4 red bricks have a mean weight of 5 kg.   5 blue bricks have a mean weight of 9 kg.
1 green brick has a weight of 6 kg.

Donna says, "The mean weight of the 10 bricks is less than 7 kg."

$$\text{Mean} = \frac{\text{Total}}{\text{Number of values}}$$

Is Donna correct? You must show how you get your answer.

$$\text{Total weight of red bricks} = 4 \times 5 = 20$$

$$\text{Total weight of blue bricks} = 5 \times 9 = 45$$

$$\text{Mean of all bricks} = \frac{\text{Total weight of all}}{\text{Number of bricks}}$$

$$= \frac{20 + 45 + 6}{10}$$

$$= 7.1 \text{ kg}$$

Donna is wrong.

(Total for question = 3 marks)

Q5. NON-CALCULATOR

Walkden Reds is a basketball team.

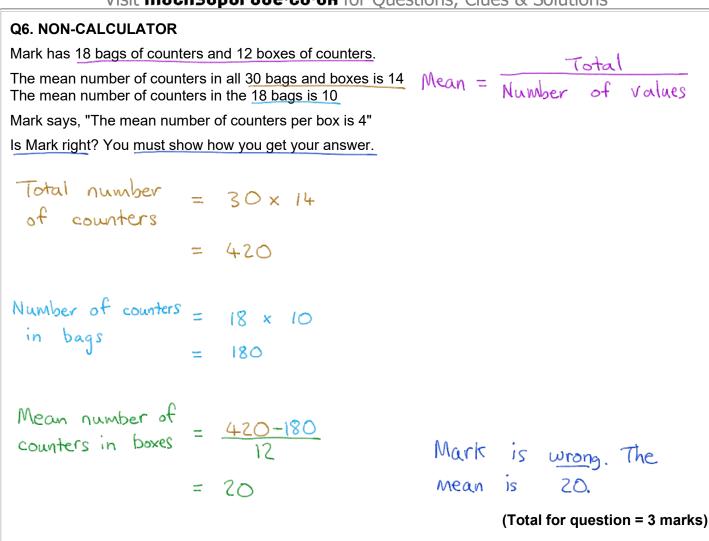$$\text{Mean} = \frac{\text{Total}}{\text{Number of values}}$$

At the end of 11 games, their mean score was 33 points per game.
At the end of 10 games, their mean score was 2 points higher.

Jordan says, "Walkden Reds must have scored 13 points in their 11th game."

Is Jordan right? You must show how you get your answer.

$$\text{Total points after 11 games} = 33 \times 11 = 363$$

$$\text{Total points after 10 games} = 35 \times 10 = 350$$

$$\text{Points in final game} = 363 - 350 = 13$$

Jordan is correct.

(Total for question is 3 marks)

Q6. NON-CALCULATOR

Mark has 18 bags of counters and 12 boxes of counters.

The mean number of counters in all 30 bags and boxes is 14
The mean number of counters in the 18 bags is 10

Mark says, "The mean number of counters per box is 4"

Is Mark right? You must show how you get your answer.

$$\text{Mean} = \frac{\text{Total}}{\text{Number of values}}$$

Total number of counters $= 30 \times 14$
$= 420$

Number of counters in bags $= 18 \times 10$
$= 180$

Mean number of counters in boxes $= \frac{420 - 180}{12}$
$= 20$

Mark is wrong. The mean is 20.

(Total for question = 3 marks)

Q7. CALCULATOR ALLOWED

The manager of a clothes shop recorded the size of each dress sold one morning.

10	10				
12	12				
14	14	14	14	14	14
16	16	16	16		
18	18	18			
20	20	20			

The sizes of dresses are always even numbers.
The mean size of the dresses sold that morning is 15.3

The manager says, "The <u>mean size</u> of the dresses is **not** <u>a very useful average.</u>"

(i) Explain why the manager is right.

Dresses are not available in size "15.3".

....

(ii) Which is the <u>more useful average</u> for the manager to know, the <u>median</u> or the <u>mode</u>?
You <u>must give a reason for your answer.</u>   Median = 15

The mode is the most useful average since
the median will give an odd number size,
which can't be ordered

(Total for question is 2 marks)