

## Averages Exam Practice



Q1. Here is a list of numbers: 3 4 5 5 5 6 7 7 8 10

(i) Work out the range.

$$\begin{aligned} 10 - 3 \\ = 7 \end{aligned}$$

Answer: 7  
(1 mark)

(ii) Find the mode.

5

Answer: 5  
(1 mark)

(iii) Calculate the mean.

$$\begin{aligned} \text{mean} &= \frac{\text{Total}}{\text{no. of numbers}} \\ &= \frac{63}{10} \end{aligned}$$

Answer: 6.3  
(2 marks)



Q2. Here is a list of numbers: 24 29 15 30 13 14 19

(i) Find the range

$$\begin{aligned} 30 - 13 \\ = 17 \end{aligned}$$

Answer: 17  
(1 mark)

(ii) Calculate the mean

$$\begin{aligned} &= \frac{144}{7} \\ &= 20.6 \quad (1 \text{ d.p.}) \end{aligned}$$

Answer: 20.6 (1 d.p.)  
(2 marks)

(iii) Sara claims that the median is 30. Explain why she is incorrect.

*Sara has not ordered the numbers before selecting the middle number.*

Answer: \_\_\_\_\_  
(1 mark)



Q3. Find the median of the following set of numbers:

3 7 2 8 11 100 9 13 18 4 1 19

~~3~~ ~~7~~ ~~2~~ ~~8~~ ~~11~~ 8 9 ~~13~~ ~~18~~ ~~4~~ ~~1~~ ~~19~~ ~~100~~

Answer: 8.5  
(2 marks)

Q4. Here is a list of numbers: 0.4  $\frac{3}{4}$  0.08 0.25 0.3  $\frac{1}{2}$  0.14  $\frac{2}{3}$

(i) Find the range  $\frac{3}{4} - 0.08$

$$= 0.75 - 0.08$$

$$= 0.67$$

Answer: 0.67  
(1 mark)

(ii) Calculate the mean

$$\frac{\text{Total}}{\text{no. numbers}} = \frac{3.086}{8}$$

$$= 0.38575$$

$$= 0.4 \text{ (1 d.p.)}$$

Answer: 0.4 (1 d.p.)  
(2 marks)





## Applied Mixed Practice Problems

Q5. Tim throws 9 darts at a dartboard. He works out that his mean score is 18. Given that he would like to have a mean of 20, work out how many points he needs to score with his next dart.

- Total after 9 darts is  $18 \times 9 = 162$
  - Need total of 200 ( $10 \times 20$ ) for mean 20
- $\Rightarrow$  need  $200 - 162 = 38$  with 10<sup>th</sup> dart-

Answer: 38  
(2 marks)



Q6. Peter scores 128 runs in 4 cricket matches. John played 7 matches and his mean score was 35 runs. Work out the mean score of all the matches played by Peter and John combined.

• Peter: Total runs is 128

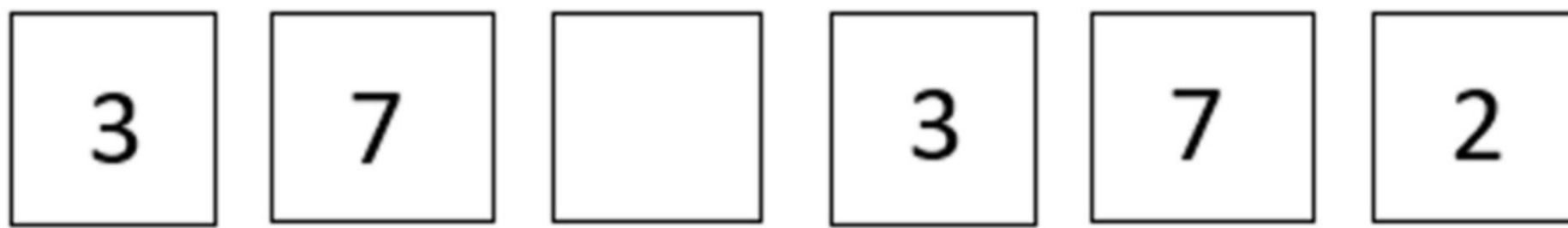
• John: Total runs is  $7 \times 35 = 245$

• Mean of all matches = 
$$\frac{128 + 245}{4 + 7}$$
$$= \frac{373}{11}$$
$$= 33.90\dots$$
$$= \underline{33.9} \quad (1 \text{ d.p.})$$

Answer: 33.9 (1 d.p.)  
(3 marks)



Q7. Here some number cards, one of which has been left blank:



If the median of all the numbers is to be 4, work out what number should go in the blank.

. 2 3 3 7 7 *after re ordering*

⇒ need: 2 3 3 5 7 7  
          ✓  
          4

So 5.

Answer: 5  
(2 marks)





Q8. Here are the salaries of the staff in a small company:

£13,000   £18,000   £24,000   £25,500  
£26,000   £32,000   £45,000   £1,200,000

(i) Calculate the mean and median for this data.

$$\begin{aligned} \cdot \text{ Mean} &= \frac{1383500}{8} \\ &= \underline{\underline{£172,937.50}} \end{aligned}$$

$$\begin{aligned} \cdot \text{ Median} &= \frac{25500 + 26000}{2} \\ &= \underline{\underline{£25,750}} \end{aligned}$$

Answer: £172,937.50, £25,750  
(2 marks)

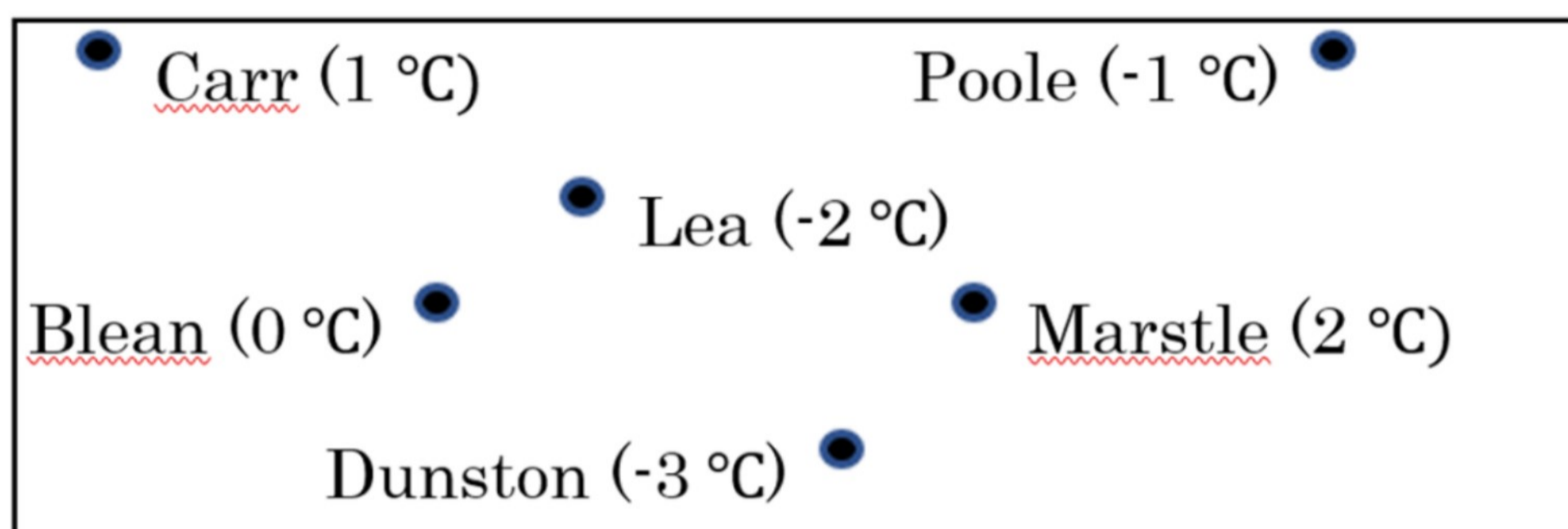
(ii) Which of your answers above represents the set of data above the best?  
Justify your answer.

- The median is closest to most of the values (all except the outlier, £1,200,000)
- So the median represents the data set better

Answer: Median  
(1 mark)



Q9. Here are some temperatures on a local weather map:



(i) Calculate the mean temperature for this local region.

$$\begin{aligned} \frac{\text{Total}}{\text{no. items}} &= \frac{-3}{6} \\ &= -0.5^\circ\text{C} \end{aligned}$$

Answer: -0.5°C  
(2 marks)

(ii) The temperature for New Abbey, which is also in this region, was reported as 3 °C in one source, and -2 °C by another. Which do you think is most likely to be correct? Justify your answer.

*-2°C is nearer to the mean temperature in this region, that is -0.5°C, so -2°C is more likely to be correct.*

Answer: -2°C  
(1 mark)