

# Test yourself

12 December 2019 10:36



T&T2 Test  
yourself 7



T&T2 Test  
yourself...

## Statistics 2 – Averages and Spread

chapter

7

136

Test yourself 7

Pg 136

## Test yourself 7

1. (a) The mean of 3, 7, 8, 10, x is 8. Find x.

$$\frac{3+7+8+10+x}{5} = 8 \quad \text{Mean}$$

$$\frac{28+x}{5} = 8 \quad \text{Multiply}$$

$$\begin{array}{l} 28+x=40 \\ -28 \quad | \quad x=12 \quad | \quad -28 \end{array}$$

(b) Find (i) the mean (ii) the median for the following set of data:

3, 5, 4, 7, 29, 9, 2, 4, 10, 8

Which of these two averages is the more suitable to represent the data?

Give a reason for your answer.

$$\begin{array}{l} \text{Mean} \\ \frac{81}{10} = 8.1 \end{array}$$

2, 3, 4, 4, 5, 7, 8, 9, 10, 29

$$\frac{5+7}{2} = \frac{12}{2} = 6 \quad \text{Median}$$

Extreme value - Outlier

HIW Q1

(c) Find (i) the median (ii) the upper quartile (iii) the lower quartile for these numbers:

12 6 4 9 8 4 9 8 5 9 10

Q2 H/W

2. (a) The mean height of six girls is 1.63 m.  
The mean height of five of the girls is 1.61 m.  
Find the height of the sixth girl.

(b) A group of boys and girls took a Geography test. These are the marks which the boys got:

13, 14, 14, 15, 14, 14, 15, 17, 16, 14, 16, 12

- (i) Find the range of the boys' marks.
- (ii) Calculate the mean mark of the boys.

The mean mark for the girls in the class was 13.2 and the girls' marks had a range of 7.

- (iii) Make two statements about the differences between the boys' and girls' marks in the Geography test.

**3.** (a) Find a set of three numbers for which the median is 15, the mean is 13 and the range is 12.

(b) The numbers of goals scored by the 11 members of a hockey team in 2009 were as follows:

6    0    8    12    2    1    2    9    1    0    11

- (i) Find the median.
- (ii) Find the upper and lower quartiles.
- (iii) Find the interquartile range.

**4.** (a) Find the mean, correct to one decimal place, and the mode(s) of this set of numbers:  
34, 28, 38, 19, 19, 21, 28, 19, 37, 36, 19.

Why is the mode a bad choice of average in this case?



(b) A sample of 10 measurements has a mean of 15.7 and a sample of the other 20 measurements has a mean of 14.3. Find the mean of all 30 measurements. Give your answer correct to one decimal place.

- (c) In a diving competition, the five judges gave scores of 8, 7.5, 8.5, 9 and 8.
- (i) Delete the highest and lowest scores and find the mean of the remaining three scores. Multiply this by the Degree of Difficulty of 2.8 to get the score for the dive.
  - (ii) Repeat the process above to find the score for a dive with a Degree of Difficulty of 3.2 if the judges' scores are 6, 6.5, 6.5, 7, 7.5.  
Give each answer correct to two decimal places.

**5.** (a) The weekly wages of the employees of a fast-food takeaway are listed below:

€300, €250, €240, €220, €200, €1050.

Find (i) the mean wage

(ii) the median wage

Why can't you find the mode?

Which of the averages – mean or median – best represents the 'typical' wage?

(b) The range for eight numbers is 40 and seven of these numbers are shown.  
Find two possible values for the missing number.

|    |   |    |    |
|----|---|----|----|
| 27 | 5 | 33 | 42 |
| 11 |   | 13 | 19 |

- (c) The frequency table shows the numbers of postage stamps bought by 20 people in the past month.

|                         |     |     |       |       |
|-------------------------|-----|-----|-------|-------|
| <b>Number of stamps</b> | 0–4 | 5–9 | 10–14 | 15–19 |
| <b>Frequency</b>        | 2   | 4   | 6     | 8     |

Use the mid-interval values to find an estimate of the mean number of stamps bought.

- 6.** (a) Over the complete assessment period, Jenny averaged 35 out of a possible 40 marks for her maths tests. However, when checking her files, she could only find 7 of the 8 tests. For these she scored 29, 36, 32, 38, 35, 34 and 39. Determine how many marks out of 40 she scored for the eighth test.

(b) Ten men travelled to watch a rugby match.  
The mean age of the men was 25 years and  
the range of their ages was 6.

Write each statement below and then write  
next to it whether it is

(i) true (ii) could be true or (iii) false.

- (a) The youngest man was 18 years old.
- (b) All the men were at least 20 years old.
- (c) The oldest person was 4 years older than the youngest.
- (d) Every man was between 20 and 26 years old.



# Answers

## Test yourself 7

1. (a) 12  
(b) (i) 8.1  
(ii) 6; Median as it has the same number of values above and below it.  
(c) (i) 8      (ii) 9      (iii) 5
2. (a) 1.73 m  
(b) (i) 5  
(ii) 14.5  
(iii) The boys had a higher mean score and were more consistent.
3. (a) 6, 15, 18  
(b) (i) 2  
(ii)  $Q_3 = 9, Q_1 = 1$   
(iii) 8



## Answers

- 4.** (a) Mean – 27.1; The mode is not representative of the other values  
(b) 14.8  
(c) (i) 8.17; 22.87      (ii) 6.67; 21.33
- 5.** (a) (i) €376.67      (ii) €245  
(iii) No two data values (wages) the same;  
Median  
(b) 45, 2  
(c) 12
- 6.** (a) 37  
(b) (a) False      (b) Could be true  
(c) False      (d) Could be true