

Explain your brain week 5

[Science](#), [Mathematics](#)



Solutions to questions Question W5. 2 Calculations Explanations A had keep track of their social interactions for a week. The number of social interactions over the week is shown in the following grouped frequency distribution. How many students had at least 60 social interactions for the week?

Number of Social Interactions

Frequency

45-49

7

50-54

16

55-59

11

60-64

17

65-69

12

70-74

11

75-79

5

80-84

8

85-89

0

90-94

3

Copy the problem or write out important information.

2

Need to determine the groups that represent 60 or more interactions.

This frequency distribution groups the number of social interactions so that the characteristics of the data can be identified (Mason et al). It shows the frequency with which students had a certain number of social interactions. The number of social interactions is placed in ten groups. The first group includes interactions from 45 to 49, the second – 50 to 54 and so on; with each group having a class size of five. The frequency shows the number of students who fall in the respective groups. The question requires those with 60 and more and so the frequencies of the groups with 60 or more interactions would be added.

The following shows a table lists the groups with 60 or more interactions along with their corresponding frequencies.

Groups with interactions of 60 and over

Number of students

60-64

17

65-69

12

70-74

11

75-79

5

80-84

8

84-89

0

90-94

3

The list represents groups which had social interactions of 60 or more and this is what the question requires. The number of students (the corresponding frequency) is also shown.

The list excludes the 45-49, 50-54 and 55-59 groups since these groups contain social interactions of less than 60.

Adding the frequencies yields:

Groups with interactions of 60 and over

Number of students (frequency)

60-64

17

65-69

12

70-74

11

75-79

5

80-84

8

84-89

0

90-94

3

Total number of students with at least 60 social interactions

56

The frequencies for the different groups are added and the results indicate that 56 students had at least 60 interactions for the week.

Question 5. 3

Calculations

Explanations

1

For the following set of numbers, find the median.

43, 60, 56, 35, 48, 47

Copy of the problem

2

Placing the numbers in ascending order yields:

35, 43, 47, 48, 56, 60

The numbers 43, 60, 56, 35, 48 and 47 are first arranged from smallest to largest.

The median is the number that falls in the middle of a set of numbers that have been arranged in ascending or descending order. That is, from the smallest to the largest or vice versa (Mason et al 1998).

3

47 and 48

The number that falls in the middle is identified. In this case the set of numbers is even and so two numbers fall in the middle. Therefore, some additional work is necessary

4

$$(47+48)/2 = 47.5$$

Therefore,

the median = 47.5

The arithmetic mean of these two numbers is calculated in order to arrive at the median.

The numbers 47 and 48 which are placed in brackets are first added. The result - 95 is then divided by 2 (i. e. $95/2$) which yields a median value of 47.5.

References

Mason, R. D., Lind, D. A. and Marchal, W. G. (1998). Statistical Techniques in Business & Economics. 10th ed. Irwin/McGraw-Hill