

Topic test 13**Analysing data**

- Time allowed: 45 minutes.
- Part A: 20 multiple-choice questions (40 marks)
- Part B: 7 free-response questions (60 marks)

Name: _____

Part A

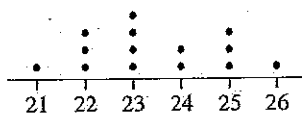
20 multiple-choice questions
2 marks each: 40 marks
Circle the correct answer.

Questions 1 to 4 refer to this set of scores:

4 7 7 8 10 11 12 17

- 1 What is the range?
A 13 B 11
C 9 D 17
- 2 What is the mode?
A 7 B 17
C 9.5 D 9
- 3 What is the mean?
A 9 B 9.5
C 10.5 D 8
- 4 What is the median?
A 7 B 9
C 9.5 D 13
- 5 Which one of these is a measure of spread?
A median B mode
C range D mean
- 6 Which measure is the most popular score?
A median B mode
C range D mean

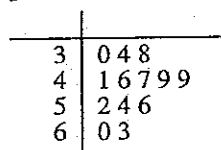
Questions 7 to 10 refer to this dot plot, which shows the daily temperature (in °C) of a town over a fortnight:



- 7 Find the mean.
A 23 B 23.4
C 23.5 D 23.6
- 8 Find the mode.
A 23 B 23.5
C 24 D 26
- 9 Find the median.
A 23 B 23.6
C 23.5 D 24

- 10 After the fortnight referred to in Questions 7 to 9, the temperature of the town was 17°C. If this value is added to the given data, which two measures would *not* change?
A mode and range B mean and range
C mean and median D mode and median
- 11 In a survey of 400 people, 288 people wanted Australia to become a republic. If a similar sample of 5000 people were surveyed, how many of them would want Australia to become a republic?
A 720 B 2304
C 9000 D 3600
- 12 Which measure depends on the values of *all* scores in a data set?
A mean B median
C mode D range
- 13 If a data set has 9 scores listed in order, then the median is:
A the 4th score B the 5th score
C the average of the 5th and 6th scores
D the average of the 6th and 7th scores

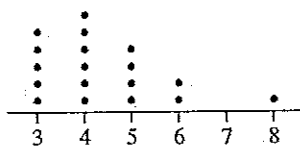
Questions 14 to 17 refer to this stem-and-leaf plot.



- 14 What is the mode?
A 48 B 47.5
C 49 D 47
- 15 What is the median?
A 48 B 47.5
C 49 D 48.5
- 16 What is the range?
A 63 B 9
C 30 D 33
- 17 What is the mean?
A 48 B 47.5
C 49 D 47.6

Topic test 13: Analysing data *continued*

24 (10 marks) Khanh surveyed some homes and counted the number of beds in each one. She displayed her results on the dot plot below.



- How many homes were surveyed?
- How many homes had fewer than 5 beds?
- What is the mode?
- What is the range?
- What is the median?

25 (12 marks) A group of couples were surveyed on the number of children they had. The results are listed below:

5 3 2 0 3 2 1 2 4 3
2 1 5 0 1 6 3 4 2 2

a Complete the f and fx columns for this data, including the totals.

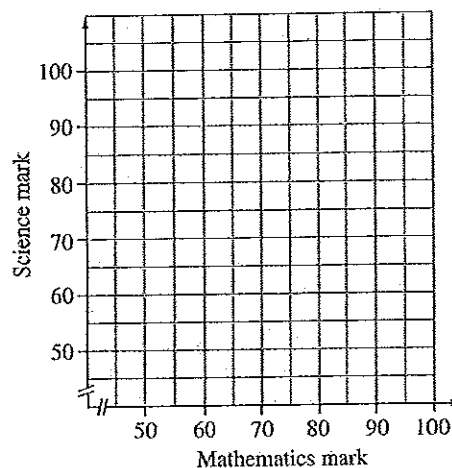
Score x	Frequency f	fx
0		
1		
2		
3		
4		
5		
6		
Totals		

- What percentage of couples have 0 or 1 child?
- Calculate the mean.
- Find the median.
- Find the mode.

26 (13 marks) The exam marks in both mathematics and science of 9 students are shown in the table below:

Mathematics	55	84	60	74	99	87	65	78	63
Science	60	77	58	68	90	77	65	71	100

a Plot this data as a scattergram below.



- Describe what the pattern of points on the diagram shows about the relationship between the mathematics and science marks.
- Draw a line of best fit for the data.
- Michael, one of the students represented on the graph, scored marks that did not fit the pattern of the other students. What was Michael's science mark?
- Josie was absent for the science exam but scored 70 in the mathematics exam. Use the graph to predict what she will score in the science exam.
- Sanjeev was absent for the mathematics exam but scored 87 in the science exam. Use the graph to predict what he will score in the mathematics exam.

Topic test 13: Analysing data continued

18 What score goes in the blank if the mean of all scores is 4?

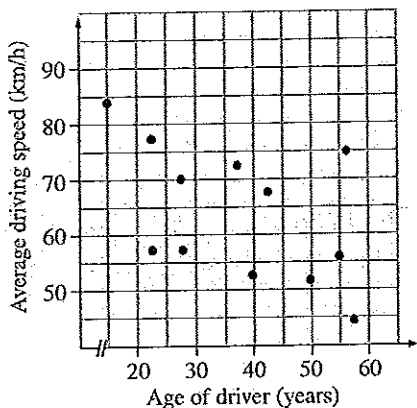
4 3 7 _____

- A 4 B 3.5
C 2.5 D 2

19 Which measure can be used to describe categorical data as well as quantitative data?

- A mean B mode
C median D range

20



The pattern in this scatter diagram shows that younger people tend to:

- A use the roads more frequently than other people
B drive more slowly than other people
C drive at the same speed as other people
D drive faster than other people

Part B

7 free-response questions

60 marks

Show working where appropriate.

21 (10 marks) Sean surveyed families on the number of mobile phones they owned and collected the results into this frequency table.

Score x	Frequency f	fx
0	4	
1	9	
2	18	
3	11	
4	5	
5	3	
Totals	50	

a Complete the fx column, including its total.

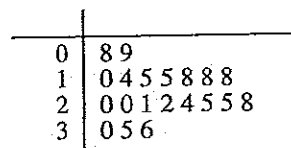
b Calculate the mean.

c Find the median, showing working.

d Find the range.

e What percentage of families owned more than 2 mobile phones?

22 (10 marks) The weekly pocket money (in dollars) earned by a group of students are shown in the stem-and-leaf plot below:



a How many students are in the group?

b What is the biggest amount of pocket money?

c What fraction of students earn more than \$25?

d What is the median?

e What is the mode?

23 (2 marks) Zoe surveyed all Year 8 students and found that 44 of them were left-handed. There are 189 students in Year 8 and 1097 students in the whole school. Use this information to predict how many left-handed students are in the whole school. Show your working.

Topic test 13: Analysing data *continued*

27 (3 marks) Find any 5 numbers that have a mean of 11 and a median of 15.

END OF TEST.

Use the rest of this page for
extra working space.