Multiple choice section

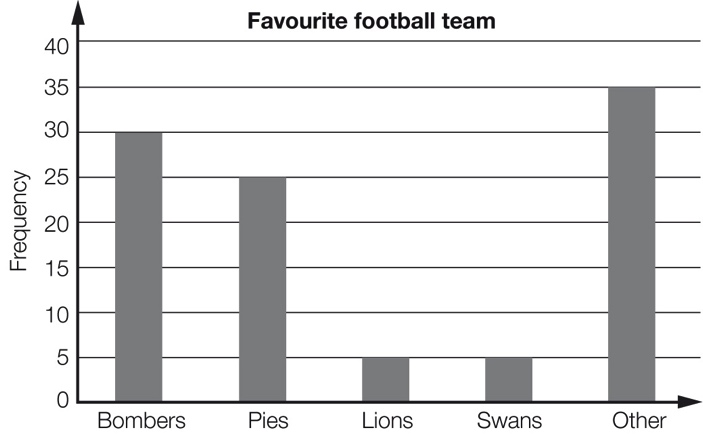
Question 1 [9.2]

What is the median of the following numbers? 4 4 6 5 8

A 4 B 5 C 5.4 D 6

Question 2 [9.3]

The following column graph shows the favourite football team for Year 7 students.



The approximate number of students who support the Pies or the Lions is:

A 5 B 20 C 25 D 30

Question 3 [9.7]

A standard six-sided die is rolled once. The probability of rolling a multiple of 3 is:

A  B  C  D 2

Question 4 [9.4]

The best type of statistical graph to display the brand of car owned by a selection of 100 car owners is a:

A sector graph B line graph C histogram D column graph

Question 5 [9.2]

What is the mean of the following data? 2 2 3 5 8 10 12

A 2 B 5 C 6 D 7

Question 6 [9.1]

The following data list records the street address numbers for each of the students in a class.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | 44 | 59 | 3 | 148 | 90 | 82 | 16 | 43 | 33 |
| 21 | 18 | 21 | 45 | 36 | 20 | 45 | 77 | 111 | 40 |
| 2 | 15 | 18 | 19 | 25 |  |  |  |  |  |

The frequency for the 11−20 group is:

A 4 B 5 C 6 D 7

Question 7 [9.7]

When Victor and Brenda played Scrabble in the past, Victor won 6 games and Brenda won 5. The probability that Victor will win the next game is closest to:

A 54% B 46% C 45% D 55%

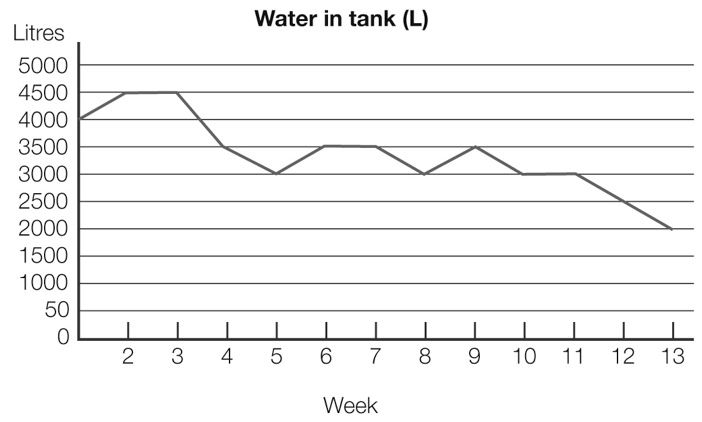
Question 8 [9.4]

In one class, 46% of students have brown hair. If a sector graph is to be drawn showing hair colour, then the number of degrees required for brown hair is:

A 46° B 54° C 83° D 166°

Question 9 [9.5]

Rhonda has a 5000 L water tank that she uses to water her vegetable garden. The graph shows the amount of water in the tank at the beginning of the week for a 12-week period.

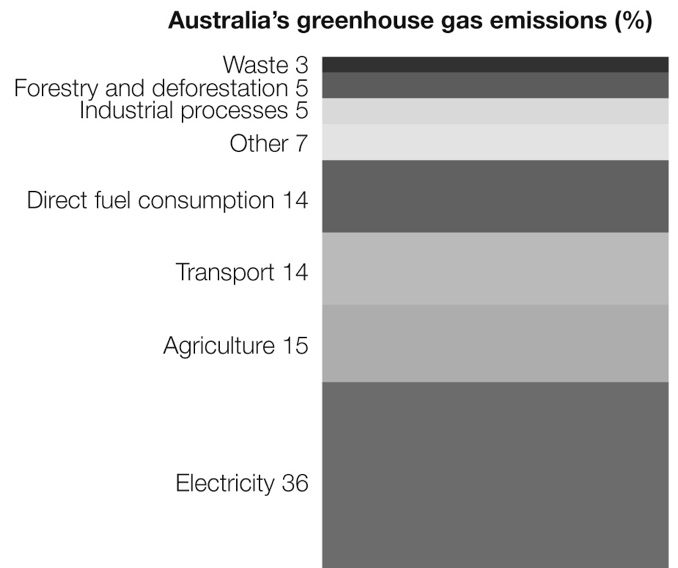


In which weeks can you be certain there was rain?

A 5, 10 and 11 B 4, 7 and 8 C 3, 6 and 7 D 1, 5 and 8

Question 10 [9.4]

The graph below shows the percentage contribution of various activities to Australia’s greenhouse gas emission. Agriculture and transport together contribute:



A 14% B 15% C 29% D 36%

Question 11 [9.2]

Find the mode of these numbers: 1, 3, 5, 3, 4, 2, 3, 1, 4, 2

A 1, 2 and 4 B 3 C 10 D 28

Multiple-choice total marks: \_\_\_\_ / 11

Short answer section

Question 12 3 marks [9.1]

Use words from the list below to complete the following sentences.

bivariate data categorical data mean median probability sample space

(a) The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a data set is found by adding together all the results and dividing by the number of results.

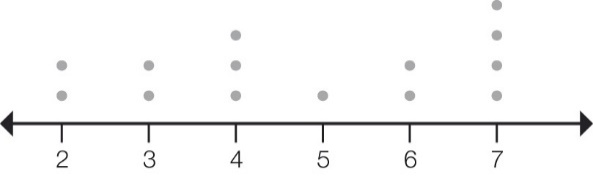
(b) The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an event is found by dividing the number of successful outcomes by the total number of outcomes.

(c) If we record the colour of cars in a car park we are dealing with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

Question 13 2 marks [9.1]

Explain the difference between continuous numerical data and discrete numerical data. Give an example of each to help you explain the difference.

Question 14 10 marks [9.3]



(a) For the dot plot above, find the:

(i) mean (correct to 1 decimal place) (ii) median

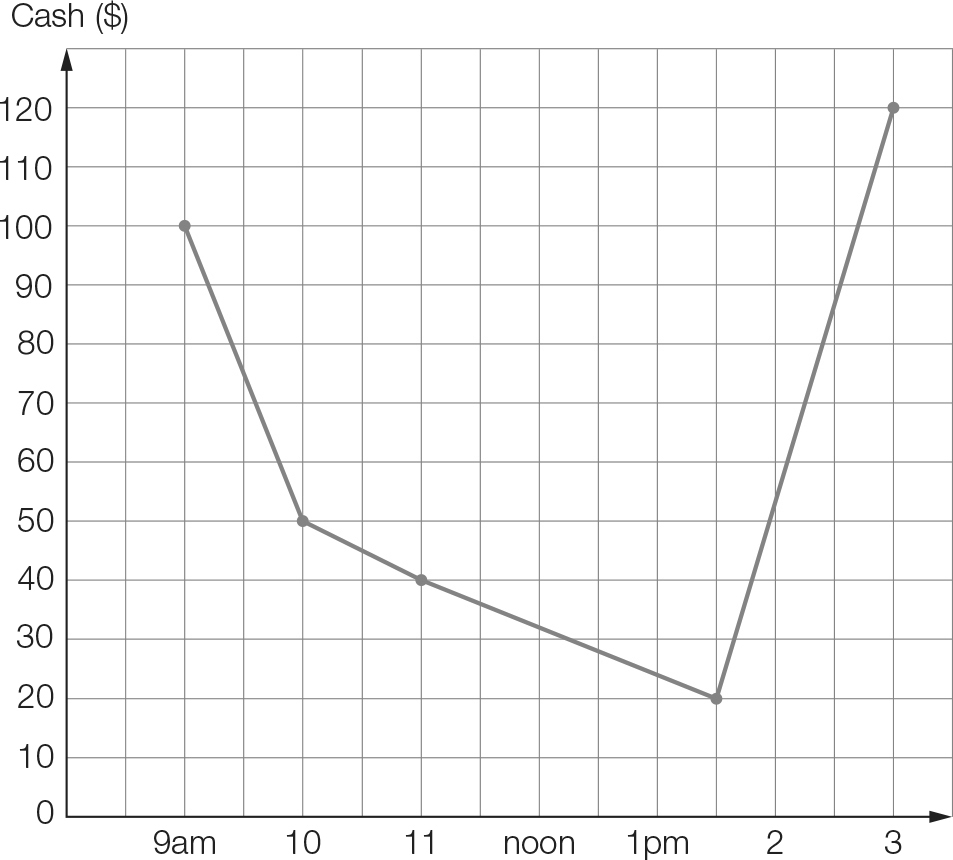
(iii) mode (iv) range

(b) If one of the 7s is replaced by the outlier 12, then what effect does this have on the answers for part **(a)?**

(i) mean (ii) median

(iii) mode (iv) range

Question 15 4 marks [9.5]



Joanie went to the shopping mall at 9 am with $100 in her wallet. She recorded the amount of money in her wallet following each transaction.

(a) What was the largest amount that Joanie spent and when was this?

(b) At what time did Joanie go to the cash point? How much did she withdraw?

(c) For what period of time did Joanie have $40 in her wallet?

(d) For what period of time did Joanie have less than $80 in her wallet?

Question 16 4 marks [9.3]

A class of year 7 students kept a tally of the number of movies they saw throughout the term. Here are their results.

25 37 15 12 5 40 31 43 22 14 27 38

19 26 8 25 19 11 10 20 44 9 6 26

(a) Construct an ordered stem-and-leaf plot to show the data using stems of 0, 1, 2 etc.

|  |  |
| --- | --- |
| STEM | LEAF |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

(b) Describe the distribution of data using median and range.

Question 17 4 marks [9.4]

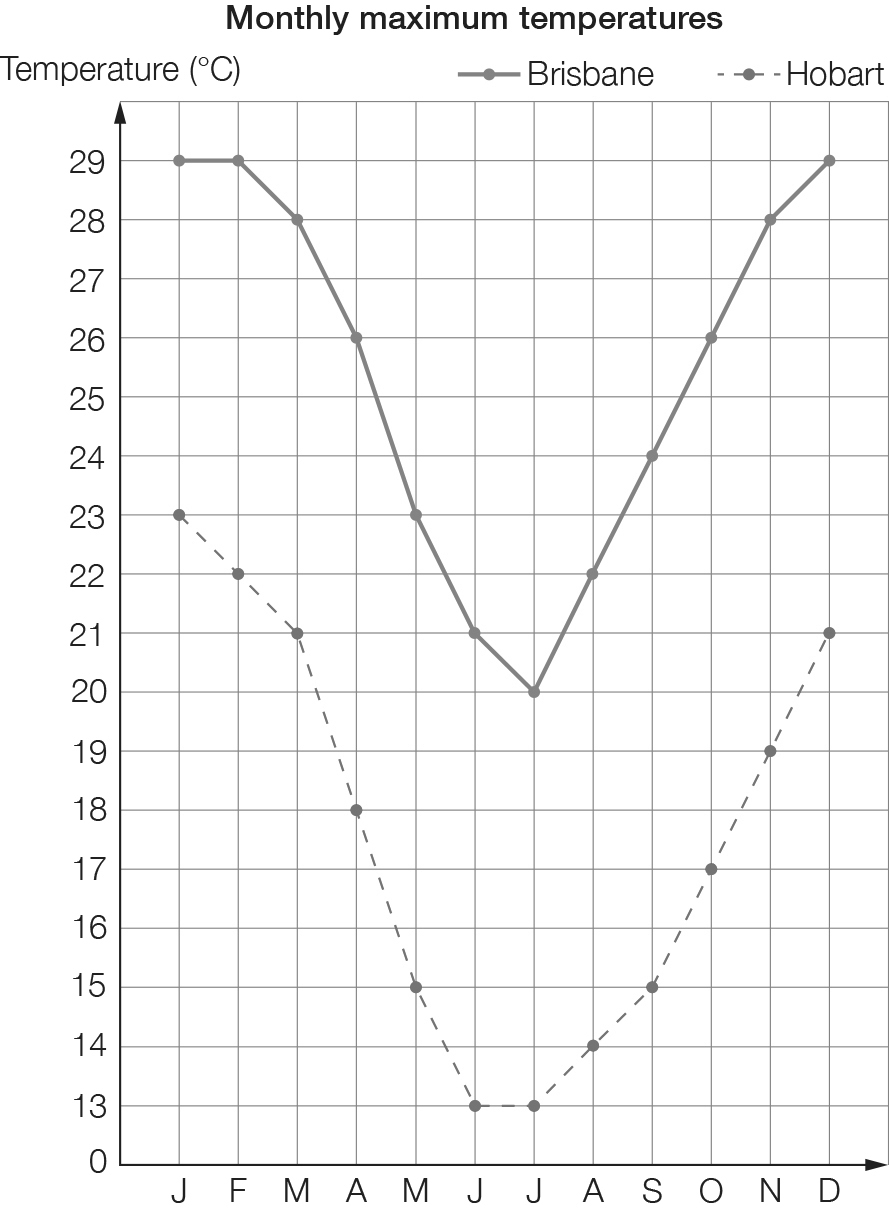
A report on speeding fines in Victoria showed that of the average of about 3500 fines every day, 2530 were for drivers going less than 10 km/h over the limit, 962 were for going more than 10 but less than 20 km/h over the limit, and 8 were for going 20 km/h or more over the limit.

(a) If you were to draw a pie graph of these categories, what angle would represent drivers fined for going less than 10 km/h over the limit?

(b) If a divided bar chart was used, what would you make the total length, and what length would represent drivers between 10 and 20 km/h over the limit?

Question 18 5 marks [9.6]

The average monthly maximum temperatures are given for two cities in Australia.



Compare the temperatures of the two cities from the graph and from calculations of the median and range for each city.

Question 19 7 marks [9.7]

A large spinning wheel is constructed and is divided into 20 equally sized sectors numbered from 1 to 20. The wheel is spun once. Find the probability of each of the following events.

(a) The spinner lands on 15.

(b) The spinner lands on a multiple of 5.

(c) The spinner lands on a multiple of 9.

(d) The spinner lands on a prime number.

(e) The spinner lands on a multiple of 3 or a multiple of 6.

Short answer total:\_\_\_\_\_\_\_ /39

Extended answer section

Question 20 7 marks [9.1, 9.3, 9.4]

The Year 7 class has been training for the Athletic Sports. Each student ran 100 m and had their time recorded. This was written in seconds to the nearest tenth of a second. The times were:

12.6 13.1 11.9 13.0 12.6 12.7 13.1 14.0 13.8 12.5 12.6 12.7 13.6

14.3 14.4 14.0 12.9 13.0 14.2 13.7 13.3 12.7 13.5 11.9 14.0

(a) Is this data discrete or continuous?

(b) Construct a frequency table using class intervals of 11.5−<12.0, 12.0−<12.5, etc.

(c) Construct a frequency column graph to show the data.

(d) What percentage of students ran a time better than 13.0 seconds?

Question 21 6 marks [9.2, 9.6]

Historical monthly rainfall averages (mm) for Melbourne are given below.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| J | F | M | A | M | J | J | A | S | O | N | D |
| 47 | 48 | 50 | 57 | 56 | 50 | 48 | 50 | 58 | 66 | 60 | 59 |

In recent years the monthly averages have changed. A summary is given below.

|  |  |  |  |
| --- | --- | --- | --- |
| Total | Median | Highest | Lowest |
| 605 | 48.5 | 64 | 40 |

Make up a set of possible whole number monthly averages to fit the summary. Make your values as realistic as possible. Comment on the change that has occurred.

Question 22 8 marks [9.6, 9.7]

Students in Class 7A were asked: ‘If you could have only one pet, what would it be?’ The results were as follows: cat 10, dog 8, bird 4, fish 2, other 1.

(a) If you drew a divided bar graph of the data, what height would it be?

(b) What length would you need to represent ‘dog’?

(c) If a student from 7A was chosen at random, what is the probability that their choice of pet is ‘cat’?

Students in Class 7B were then asked the same question, with the following results:  
 cat 12, dog 5, bird 3, fish 1, other 7

(d) To make a divided bar graph the same height as for 7A, what height would be used for ‘other’?

(e) In which graph would ‘cat’ have the greater height, 7A or 7B?

Question 23 9 marks [9.7]

A game consists of spinning a spinner that is divided into five equal parts (two coloured red, two coloured green and one coloured blue), as well as rolling a standard six-sided die.

(a) Complete the table to show the sample space.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 |
| **Red1** | (R1, 1) | (R1, 2) | (R1, 3) | (R1, 4) | (R1, 5) | (R1, 6) |
| **Red2** | (R2, 1) |  |  |  |  |  |
| **Green1** | (G1, 1) |  |  |  |  |  |
| **Green2** | (G2, 1) |  |  |  |  |  |
| **Blue** | (B, 1) |  |  |  |  |  |

(b) What is the probability of spinning blue and rolling an even number?

(c) What is the probability of spinning red and rolling an even number?

(d) Steve and Terry play a game where Steve wins if he spins blue and rolls an even number, but Terry wins if it is red and an even number. Is this a fair game? Explain your answer.

(e) Make up the rules for a fair game that could be played with this die and spinner.

Extended answer total:\_\_\_\_\_\_\_ /30

TOTAL test marks: \_\_\_\_\_\_\_ / 80