GCSE Statistics: Grade 1

Worked solutions

GCSE Statistics practice

1 **QUALITATIVE AND QUANTITATIVE DATA**

Priya does a survey of the cars in a country park car park. For each car she writes down

- the colour of the car
- the number of people in the car
- the make of the car

a. Write down which one of these is quantitative data.

b. Give a reason for your answer.

c. Write down one other piece of quantitative data that Priya could collect about each car. (3 marks)

a)

The number of people in the car

b)

It is a number (a count)

Colour and make are words, so they are qualitative

c)

Any answer that is a number

For example, the number of doors on the car

a) number of people b) it is a number c) e.g. number of doors

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2 TALLY CHARTS AND FREQUENCY TABLES

Callum records the type of each bird that visits his garden one morning.

Robin, Sparrow, Blackbird, Sparrow, Pigeon,
Sparrow, Robin, Blackbird, Sparrow, Pigeon,
Sparrow, Blackbird, Robin, Sparrow, Sparrow,
Blackbird, Sparrow, Robin, Pigeon, Blackbird

a. Complete the tally chart and frequency table.

b. Write down the type of bird that Callum saw the most.

c. How many more sparrows than pigeons did Callum see?

Bird	Tally	Frequency
Robin		
Sparrow		
Blackbird		
Pigeon		

(4 marks)

a) one tally mark for each bird, in groups of 5

Robin = 4

Sparrow = 8

Blackbird = 5

Pigeon = 3

Check the total

4 + 8 + 5 + 3 = 20

b)

Highest frequency is 8

Sparrow

c)

8 - 3 = 5

a) 4, 8, 5, 3 b) Sparrow c) 5

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3 **PICTOGRAMS**

The pictogram shows the number of books borrowed from a school library on four days.

a. How many books were borrowed on Tuesday?

b. How many more books were borrowed on Wednesday than on Thursday?

c. On Friday, 14 books were borrowed. Complete the pictogram.

d. Work out the total number of books borrowed in the five days.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:  = 4 books

(4 marks)

a) 1 circle = 4 books, so half a circle = 2 books

$2 \times 4 + 2 = 10$

10 books

b) Wednesday has 4 circles

$4 \times 4 = 16$

Thursday, three quarters of a circle = 3 books

$4 + 3 = 7$

$16 - 7 = 9$

9 more books

c)

$14 = 12 + 2$

3 whole circles and half a circle

d) Monday has 3 circles

$3 \times 4 = 12$

$12 + 10 + 16 + 7 + 14 = 59$

a) 10 b) 9 c) 3 and a half circles d) 59

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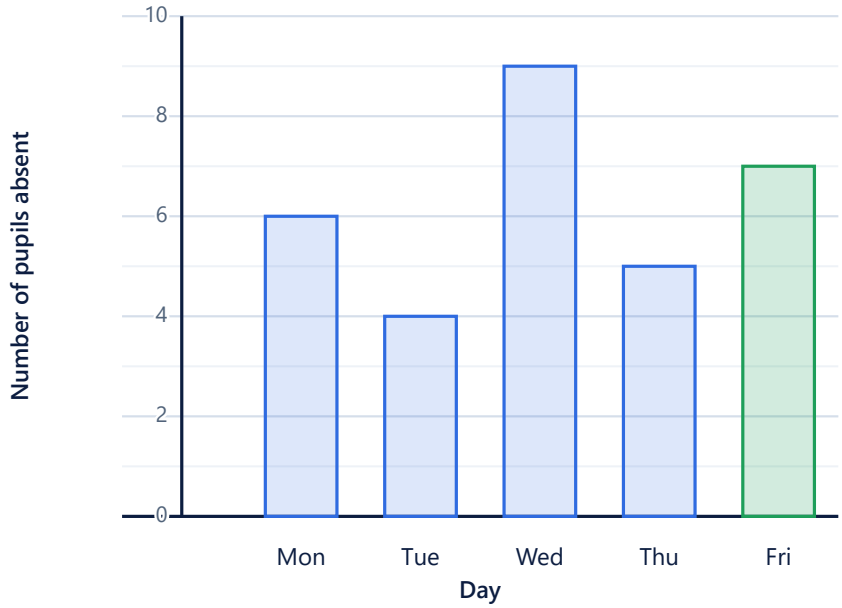
4 **BAR CHARTS**

The bar chart shows the number of pupils in Year 7 who were absent from school on each of four days.

a. How many pupils were absent on Wednesday?

b. On Friday, 7 pupils were absent. Draw this bar on the bar chart.

c. Tom says, "More than half of the absences in the week were on Wednesday and Friday."
Is Tom correct? You must show your working.



(4 marks)

a) the bar is halfway between 8 and 10

9 pupils

b)

Draw the Friday bar up to 7

Same width as the other bars

c) total for the week

$6 + 4 + 9 + 5 + 7 = 31$

Wednesday and Friday

$9 + 7 = 16$

half of the total

$31 \div 2 = 15.5$

$16 > 15.5$

a) 9 b) bar to 7 c) Yes, Tom is correct

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5 MODE AND RANGE

Here are the numbers of goals scored by a netball team in each of 9 matches.

12 15 9 15 20 11 15 18 9

a. Write down the mode.

b. Work out the range.

c. A second team has a range of 4 goals.
Which team scored a more consistent number of goals? Give a reason for your answer.

(4 marks)

a) the number that appears most often

15 appears 3 times

b) range = highest - lowest

20 - 9 = 11

c)

4 < 11

The second team has the smaller range

so its scores are closer together

a) 15 b) 11 c) second team, smaller range

6 MEDIAN

Seven people wait for a bus. Here are the times, in minutes, that they wait.

8 3 12 5 9 4 7

a. Work out the median time.

b. An eighth person waits for 10 minutes.
Work out the median time for all eight people.

(4 marks)

a) put the times in order

3, 4, 5, 7, 8, 9, 12

The middle value is the 4th value

median = 7

b) put all eight times in order

3, 4, 5, 7, 8, 9, 10, 12

The middle two values are 7 and 8

(7 + 8) ÷ 2 = 7.5

a) 7 minutes b) 7.5 minutes

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7 **PROBABILITY WORDS AND THE PROBABILITY SCALE**

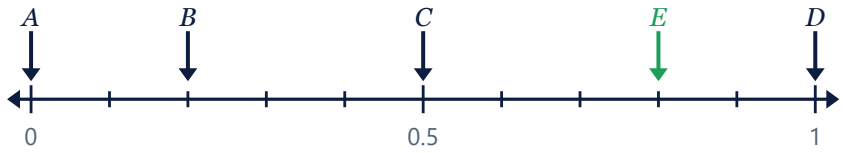
The probability scale shows the probabilities of four events, A, B, C and D.

a. Which letter shows the probability that a fair coin lands on heads?

b. Which letter shows the probability of rolling a 7 on an ordinary dice numbered 1 to 6?

c. Choose the best word from **impossible, unlikely, evens, likely, certain** to describe the probability of event B.

d. It is likely to rain in Leeds tomorrow. Mark the probability of this on the scale with an arrow. Label it E.



(4 marks)

a)

Heads and tails are equally likely

Probability is 0.5, so C

b)

There is no 7 on the dice, so it is impossible

Probability is 0, so A

c)

B is between 0 and 0.5

unlikely

d)

Likely is between 0.5 and 1

E can go anywhere between 0.5 and 1

a) C b) A c) unlikely d) E between 0.5 and 1

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8 **READING DATA FROM TABLES**

The table shows the total rainfall and the total hours of sunshine in a town for each of five months.

Month	Rainfall (mm)	Sunshine (hours)
April	52	155
May	48	190
June	60	205
July	45	212
August	71	180

a. Write down the month with the most rainfall.

b. How many more hours of sunshine were there in July than in April?

c. Work out the total rainfall in May and June.

d. Zara says, "The month with the most sunshine was also the month with the least rainfall."
Is Zara correct? Give a reason for your answer.

(4 marks)

a)

Highest rainfall is 71 mm

August

b)

212 - 155 = 57

57 hours

c)

48 + 60 = 108

108 mm

d)

Most sunshine is 212 hours, in July

Least rainfall is 45 mm, in July

Same month, so Zara is correct

a) August b) 57 hours c) 108 mm d) Yes, both are July

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