



Aberdare Community School  
Mathematics Department

WJEC GCSE

**Higher – Calculator**

Data

# Questionnaires

Name: .....

Set: .....

Date: .....

Teacher: .....

9. Manon wants to carry out a survey in order to find out how often people visit a dentist.

(a) She wrote the following question.

*How often do you visit a dentist?*

Not often       Often       Very often

What do you see wrong with this question and how would you improve it?

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[2]

(b) Another of the questions in her questionnaire was

*Which age group are you in?*

30 – 40       40 – 50       50 and above

Write down **two** criticisms of this question.

(i) .....

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(ii) .....

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[2]

1. A survey is carried out by asking people questions as they come out of a fish and chip shop. A section of the survey questionnaire is shown below.

1. How old are you?

Put a tick ✓ in the box: 15 to 20  21 to 30  30 to 40  Older than 40

2. Do you ever go to a fish and chip shop to buy take-away food?

Put a tick ✓ in the box: Yes  No

3. How did you pay? What method of payment did you use?

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- (a) Explain why this is a biased survey.

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[1]

- (b) State **two** criticisms about the design of question 1 in the survey.

(i) .....

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(ii) .....

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[2]

(c) (i) What is the problem with the design of question 3 in the survey?

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(ii) Show how question 3 in the survey could be improved.

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[2]

- 1. A survey was carried out. One of the purposes of the survey was to obtain data on how often people aged 60 and over bought pizza. Only the following two questions were asked.

Q1. *What is your name and your address?*

Q2. *How often do you buy pizzas?*

<i>Never</i>	<i>1 - 3 times</i>	<i>4 - 6 times</i>	<i>6 or more times</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- (a) For **each** question give **one** reason why it is not suitable.

Q1. ....

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Q2. ....

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[2]

- (b) Write down a **different** question which would be necessary and appropriate for this survey.

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[1]

- (c) The survey was carried out by questioning people leaving a pizza restaurant on a Saturday night. Give **one** criticism on how the survey was carried out.

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[1]

3. The Headteacher of a school wants to test the following hypothesis.

*'Most pupils spend less than one hour per night doing their homework.'*

She plans to

- hand out a short questionnaire to a Year 10 Geography class,
- ask the following questions,
  - (i) What is your name and your tutor group?
  - (ii) How much time do you spend on your homework?
- collect the replies in two weeks' time.

Write down **three** unfavourable comments about this plan.

1. ....

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2. ....

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3. ....

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[3]

- 1. A town's drama club carried out a survey by asking people questions as they left the local theatre on a Saturday night.

Part of the survey questionnaire is shown below.

1. Are you interested in drama? Tick (✓) one box only.

No interest       Some interest       Very interested

2. How old are you?

Under 12       12 to 20       21 to 50       50 to 75

3. Why would you not come to see another production?  
What puts you off coming again?

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- (a) Explain why this is a biased survey.

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[1]

- (b) State **two** criticisms about the design of **question 2** in the survey.

- (i) .....
- .....

[1]

- (ii) .....
- .....

[1]

- (c) What is the problem with the design of **question 3** in the survey?

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[1]



4. A survey is to be carried out to find out how popular MP3 players are across the various age groups of the general population. The survey is carried out by asking people questions as they come out of a cinema. Two questions from the survey questionnaire are shown below.

<b>1. How old are you?</b>		
Put a tick in the box	under 10	<input type="checkbox"/>
	10 to 20	<input type="checkbox"/>
	20 to 30	<input type="checkbox"/>
	older than 30	<input type="checkbox"/>
<b>2. Do you own an MP3 player?</b>		
Put a tick in the box	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>

- (a) Is this a biased survey? Give a reason for your answer.

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[1]

- (b) State a criticism about the design of question 1 in the survey.

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[1]

- (c) Write a question, with a selection of answer boxes, to find out how much people are prepared to pay for MP3 players.

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[2]



(d) If you were to use your question to carry out a survey by asking 100 people today and again tomorrow, would you expect to get exactly the same results? Give a reason for your answer.

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[1]

(e) A different survey was carried out to find the favourite colour of MP3 players. The results are shown in the table below.

Favourite colour of MP3 player	Number of people		
	The first 20 people asked	The second 20 people asked	The third 20 people asked
Red	2	5	8
Black	5	4	3
Silver	13	11	9

(i) Did any person answering the survey have a favourite colour of MP3 player other than red, black or silver? Give a reason for your answer.

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[1]

(ii) Calculate the best estimate for the probability that one of the people answering the survey, selected at random, says that their favourite colour of MP3 player is black.

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[2]

4361  
02/00/07

3. Denise wants to test the following hypothesis.

*'New cars use less fuel than old cars.'*

She plans to

- send a short questionnaire to every house in her street,
- ask the following two questions,
  - (i) Do you have a car?
  - (ii) How much fuel does it use?

Write down three unfavourable comments about this plan.

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2. ....  
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3. ....  
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[3]

4351  
020005



1. A survey was carried out in Newcastle in the north of England.

The following two questions were asked.

*Q1. Do you think it is right to play all of England's international matches down in London, which makes it difficult for people from the north of England to attend?*

YES  NO

*Q2. How often have you visited the new Wembley stadium in London?*

1-5 times  6-10 times  10 or more times

(a) Write down **one** criticism of the first question.

[1]

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(b) Give **two** reasons why the second question is **not** suitable.

[2]

Reason 1 .....

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Reason 2 .....

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1. A survey is carried out by asking people questions as they come out of a juice bar.



A section of the questionnaire is shown below.

In questions 1 and 2 put a tick (✓) in a box

1. How old are you?  
 15 to 20       21 to 30       30 to 40       41+

2. Do you ever go to the juice bar to buy a fruit drink?  
 Yes       No

3. What method of payment do you use? .....

(a) Explain why this is a biased survey. [1]

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(b) State two criticisms of the design of question 1.  
First criticism of question 1: [1]

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Second criticism of question 1: [1]

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(c) (i) What is wrong with the design of question 3? [1]

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(ii) Show how question 3 could be improved. [1]

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(ii) Why is grouping data useful when collating data?

[1]

Examiner  
only

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4363  
02/0011

- 1. A survey is to be carried out to find the popularity of buying books with various age groups of the general population.

The survey is carried out by asking people questions as they come out of a book shop. Two questions from the survey questionnaire are shown below.

1. How old are you? Put a tick in the box.	under 20	<input type="checkbox"/>
	20 to 30	<input type="checkbox"/>
	30 to 40	<input type="checkbox"/>
	older than 40	<input type="checkbox"/>
2. Do you buy books? Put a tick in the box.	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>

- (a) Explain why this may be a biased survey. [1]

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- (b) State a criticism about the design of question 1 in the survey. [1]

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- (c) Write a question with a selection of answer boxes, to find out how much people are prepared to pay for a paperback book. [2]

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1. Martha wants to test the following hypothesis.

*'More men than women buy a daily newspaper.'*

She plans to

- hand out a short questionnaire at a Women's Institute meeting,
- ask the following questions in the questionnaire,

(i) How old are you?

(ii) How often do you buy a newspaper?

Never  1-3 times  3-5 times  More than 5 times

- collect their replies at the next meeting.

Write down **three** unfavourable comments about this plan.

[3]

1. ....

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2. ....

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3. ....

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- 1. In a Park and Ride scheme, people leave their cars on the outskirts of a town and travel into town by bus.

A survey was carried out to decide if a town should start a Park and Ride scheme.

Shoppers in the town were asked the following four questions.

Q1. *Did you travel into town by car?*

YES  NO

Q2. *What type of car do you have?*

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Q3. *Was it easy to find a place in town to park your car?*

YES  NO

Q4. *How many times would you use a Park and Ride, if available?*

1-5 times	6-10 times	more than 10 times	less than 20 times
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- (a) Which one of the first **three** questions would you remove? You must give a reason.

[1]

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- (b) Give **two** reasons why question 4 is not suitable.

[2]

Reason 1 .....

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Reason 2 .....

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