

Please check the examination details below before entering your candidate information

Candidate surname		Other names	
Centre Number		Candidate Number	
<div>Pearson Edexcel</div> <div>Level 1/Level 2 GCSE (9–1)</div>		<div> <div></div><div></div><div></div><div></div><div></div> </div> <div> <div></div><div></div><div></div><div></div><div></div> </div>	
<div>Specimen Paper (Set 2)</div>			
(Time: 1 hour 30 minutes)		Paper Reference 1ST0/1F	
<div>Statistics</div> <div>Paper 1</div> <div>Foundation Tier</div>			
<div>You must have:</div> <div>Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, scientific calculator.</div>			<div>Total Marks</div> <div></div>

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Scientific calculators may be used.
- You must **show all your working out** with **your answer clearly identified** at the **end of your solution**.



Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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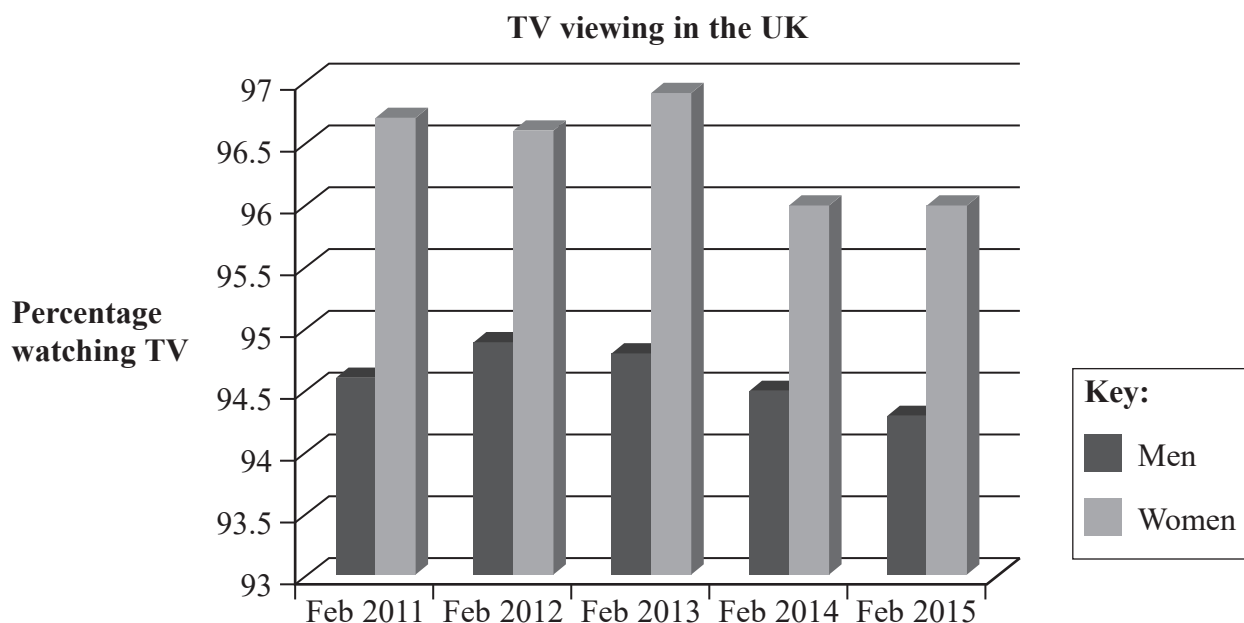


Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 Joanna is investigating the percentage of men and the percentage of women who watch TV in the UK. She found data for the UK on the internet from the Broadcasters' Audience Research Board. Joanna then used statistical software to produce this graph for her report.



This is **not** a good graph.

(a) Give two reasons why.

1.....

2.....

(2)

For the years 2011 to 2015 there were more women than men in the UK.

Joanna says that in each of these years more women than men watched TV.

(b) Explain how Joanna may have used her graph to reach this conclusion.

.....

.....

(1)

(Total for Question 1 is 3 marks)



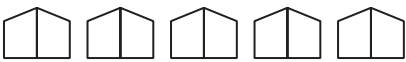

- 2 The table gives information about the 25 homes available to rent in Ashby in January 2018

Number of bedrooms	1	2	3	4
Number of homes available	4	10	6	5

(Source: *Rightmove*)

The pictogram shows the results for 2 bedroom homes and for 4 bedroom homes.

- (a) Complete the pictogram for 1 bedroom homes and for 3 bedroom homes.
Complete the key.

1 bedroom homes	
2 bedroom homes	
3 bedroom homes	
4 bedroom homes	

Key:

(3)

- (b) Write down the modal number of bedrooms.

(1)

The total number of bedrooms in these 25 homes is 62

- (c) Work out the mean number of bedrooms.

(2)

The table gives information about the 23 homes available to rent in Knaresborough in January 2018

Number of bedrooms	1	2	3	4	5
Number of homes available	2	6	4	5	6

(Source: *Rightmove*)

The Bailey family needs to rent a home with at least 3 bedrooms.

- (d) Determine which of the two towns, Ashby or Knaresborough, has the most homes available for the Bailey family to rent.
You must show how you reach your conclusion.

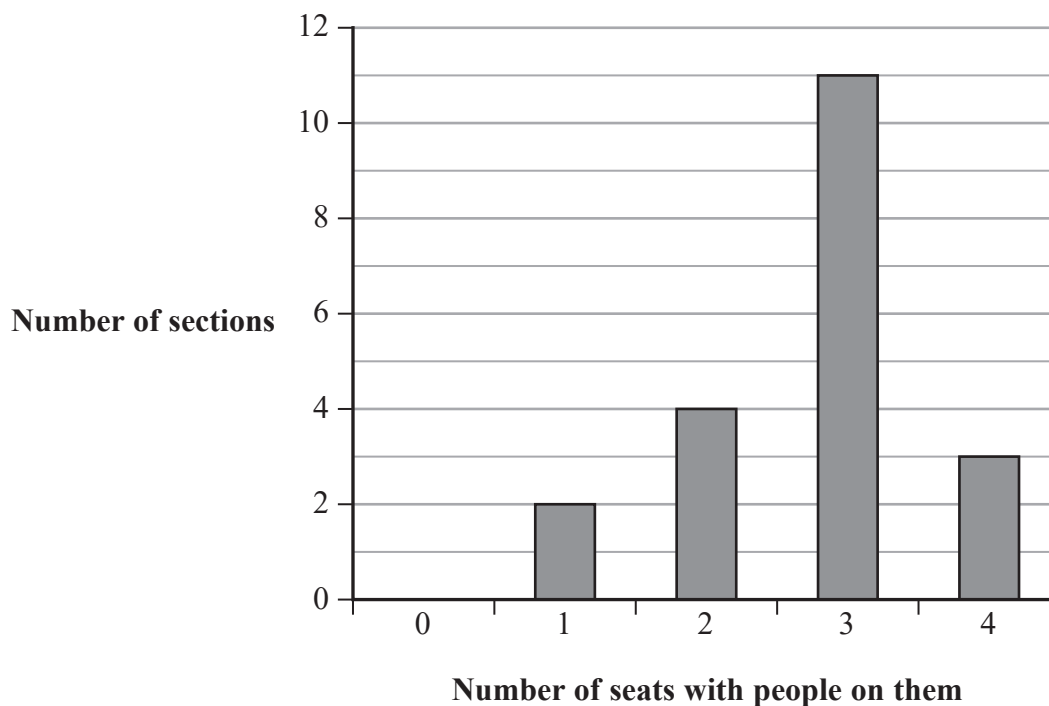
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(Total for Question 2 is 8 marks)



- 3 A train carriage is divided into sections. Each section has 4 seats.

The bar chart shows information about how many seats in each section of the train carriage have people sitting on them.



Adrian and Rik enter the carriage and want to sit in the same section.

Adrian says that they can choose from 6 sections.

Use the information in the bar chart to decide whether or not Adrian is correct.

You must explain how you reach your conclusion.

(Total for Question 3 is 2 marks)



4 Lian and Natalie own a bookshop.

They are investigating the age of each of their customers and how much each customer spends on books each month.

One question that Lian plans to ask his customers is

“How old are you?”

- (a) Explain whether or not this is a good question for Lian to ask.

(2)

- (b) Write a question that could be used on a questionnaire to find out how much each customer spends on books each month.

(2)

Natalie thinks that giving a questionnaire to each customer is better than asking the customers questions face to face.

- (c) Give one advantage for each of these methods of collecting data.

Giving a questionnaire:

Asking questions face to face:

(2)

(Total for Question 4 is 6 marks)



5 The table shows information about ten films that each won the Best Picture Oscar award.

Year	Film Title	Runtime (minutes)	USA Box Office takings (\$ thousands)	Worldwide Box Office takings (\$ thousands)	IMDb rating
2016	Moonlight	111	27 851	55 561	7.5
2015	Spotlight	128	45 056	91 191	8.1
2014	Birdman	119	42 341	103 215	7.8
2013	12 Years a Slave	134	56 672	187 733	8.1
2012	Argo	120	136 026	232 326	7.7
2011	The Artist	100	44 672	133 433	7.9
2010	The King's Speech	118	138 797	373 700	8.0
2009	The Hurt Locker	131	17 018	49 231	7.6
2008	Slumdog Millionaire	120	141 320	377 911	8.0
2007	No Country for Old Men	122	74 284	171 627	8.1

(Source: IMDb)

(a) Write down the Worldwide Box Office takings for The King's Speech.

\$..... thousands
(1)

The USA Box Office takings for the film Moonlight were more than half of its Worldwide Box Office takings.

This is true for only one other of these films.

(b) Which film?

(1)

The mean of the Worldwide Box Office takings for these ten films is \$177 593 thousand.

(c) How many of these films had Worldwide Box Office takings greater than \$177 593 thousand?

(1)



- (d) For these ten films, determine whether the film with the highest USA Box Office takings also had the highest IMDb rating.
Give a reason for your answer.

(2)

Norman says that Best Picture Oscar award winning films do not have a runtime greater than 2 hours 30 minutes.

- (e) Explain how the data in the table supports Norman's statement.

(1)

- (f) Find the range of the runtimes of these ten films.

..... minutes
(2)

Norman is investigating whether there is a relationship between the runtime of a film and the USA Box Office takings.

- (g) Write down a suitable hypothesis for this investigation.

(1)

Norman plans to use only the data from the table for his investigation.

- (h) Discuss the suitability of this plan for his investigation.

(3)

(Total for Question 5 is 12 marks)



- 6 Here is a list of words used to describe the likelihood of an event happening.

impossible

unlikely

evens

likely

certain

- (a) Choose the word from the list that best describes the likelihood of getting five Heads when a fair coin is flipped five times.

.....
(1)

A 10-sided spinner has sides that are coloured Red or Blue or Yellow only.

Rashmi spins the spinner 20 times.

She uses tallies in the following table to show her first 18 results.

Colour	Tally	Frequency
Red		
Blue	/	
Yellow	/	

Rashmi's last two results are Blue and then Yellow.

- (b) Complete the tallies and the frequency column in the table.

(2)

Rashmi is going to spin the spinner one more time.

- (c) Use the results in the table to find an estimate for the probability that Rashmi gets Red.

.....
(1)

The spinner actually has 1 Red side, 6 Blue sides and 3 Yellow sides.

Rashmi is investigating whether the spinner is equally likely to land on each side.

The spinner is spun 20 times.

- (d) Complete the table.

Colour	Probability (if spinner is equally likely to land on each side)	Expected frequency
Red	0.1	
Blue	0.6	
Yellow	0.3	

(2)



- (e) (i) Use the results from the two tables to discuss whether or not Rashmi's investigation shows that the spinner is equally likely to land on each side.

(2)

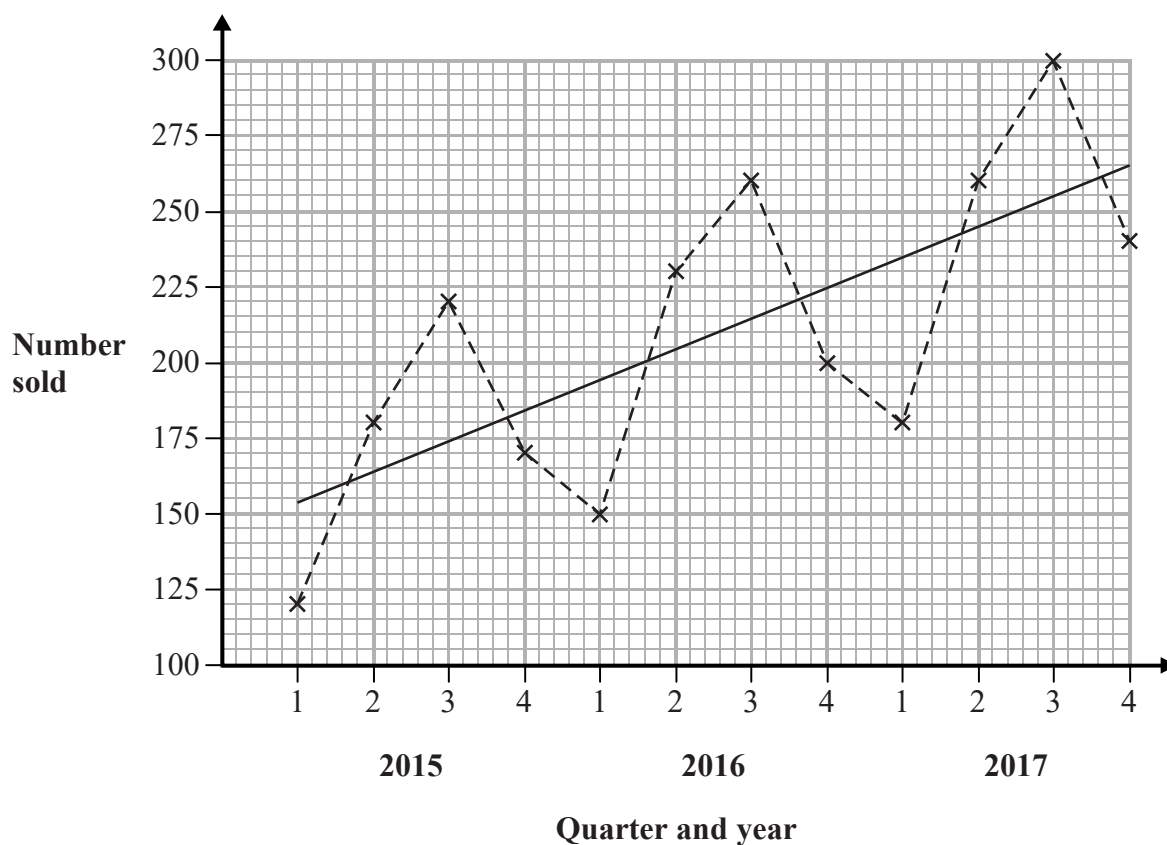
- (ii) Suggest how Rashmi could improve the reliability of her investigation.

(1)

(Total for Question 6 is 9 marks)



- 7 This time series graph shows information about the quarterly sales of soft drinks in a shop.



A trend line has been drawn on the graph.

- (a) Describe the trend in the quarterly sales of soft drinks in the shop from 2015 to 2017

(1)

- (b) (i) Give an example of seasonal variation shown by the graph.

(1)

- (ii) Suggest a reason for this seasonal variation.

(1)



The trend line was drawn using 4-point moving averages.

- (c) (i) Using the data values for 2017 from the time series graph, calculate the final 4-point moving average.

.....
(2)

- (ii) Plot your calculated 4-point moving average on the graph.

(1)

(Total for Question 7 is 6 marks)

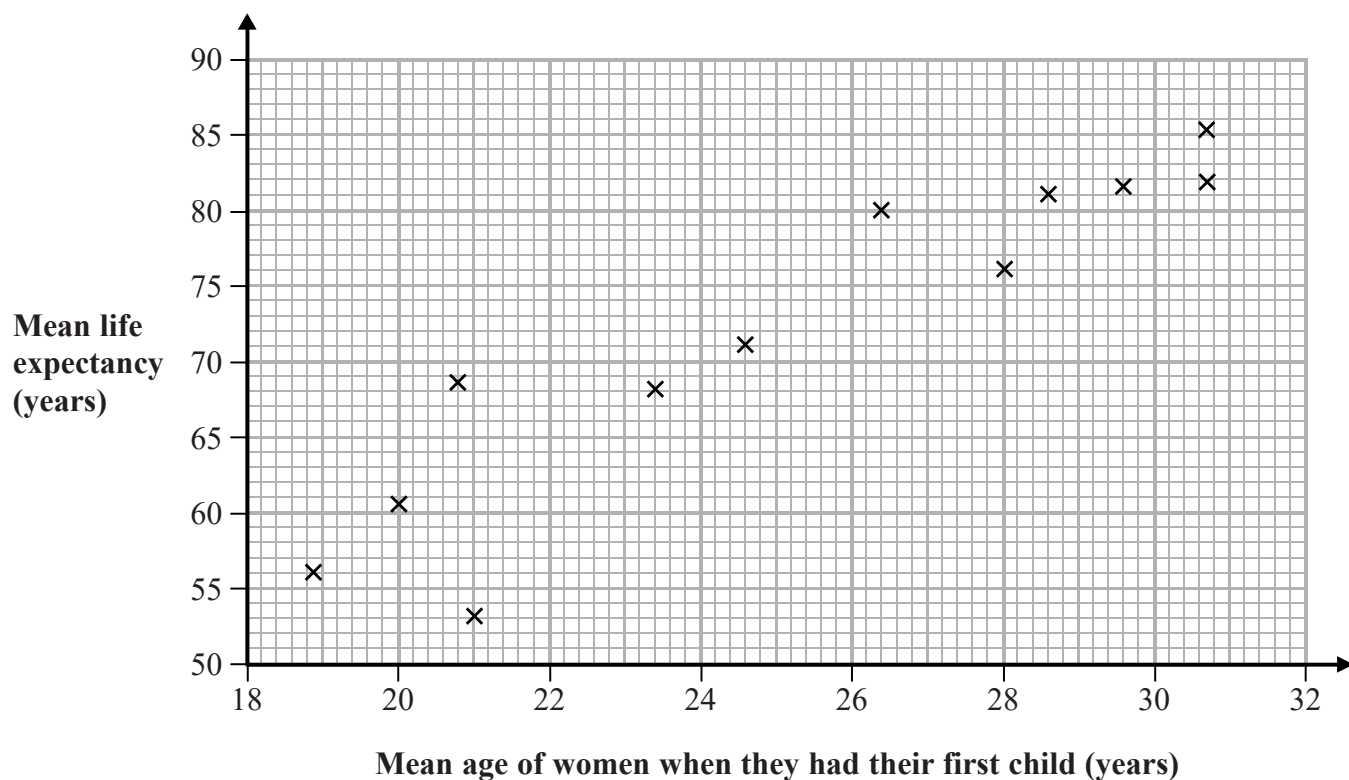


- 8 Audrey is investigating factors that affect life expectancy by using secondary data.

For a sample of 12 countries, Audrey recorded the mean age, in years, of women when they had their first child.

She also recorded the mean life expectancy, in years, for these 12 countries.

Audrey drew a scatter diagram for this information.



(Source: *CIA World Factbook*)

- (a) Explain why a scatter diagram is appropriate for the type of data Audrey collected.

(1)

For these 12 countries, the double mean point of the data is (25.2, 72).

- (b) Using this information, draw a line of best fit on the scatter diagram.

(2)



Audrey includes the following two statements in the conclusion to her investigation.

- A) There is strong positive correlation between the mean age at which women in a country have their first child and the mean life expectancy in that country.
- B) Life expectancy can be increased if women have their first child later in life.
- (c) Discuss whether or not Audrey's conclusions are appropriate.

You should consider her graph and how she carried out her investigation.

(5)

(Total for Question 8 is 8 marks)



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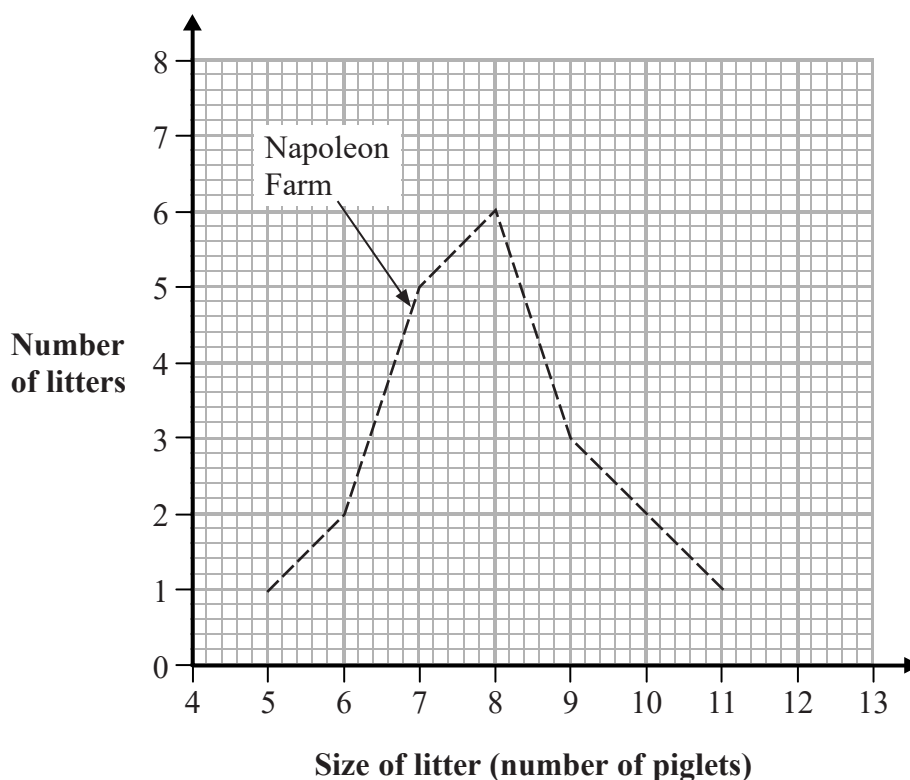


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- 9 The frequency polygon shows information about the size of litters (number of piglets) born to pigs on Napoleon Farm one year.



The table shows information about the size of litters born to pigs on Wilbur Farm for the same year.

Size of litter (number of piglets)	8	9	10	11	12
Number of litters	2	4	7	5	2

- (a) On the grid, draw a frequency polygon for the information about Wilbur Farm. (2)
- (b) Compare the distributions of the sizes of the litters for the two farms.

.....

.....

.....

.....

.....

(2)

(Total for Question 9 is 4 marks)



10 Samira wrote a questionnaire to investigate mobile phone use by the students at her school. She decided to select a simple random sample from the 850 students at her school.

(a) Explain what is meant by 'random' in this case.

(1)

(b) State the population for Samira's investigation.

(1)

Samira obtained a list of all the students at her school, numbered 001 to 850, to use as a sampling frame.

Samira decided to select her sample using random numbers generated by her calculator.

Here are her first 16 random numbers.

317	310	940	753	323	471	236	046
053	310	729	593	812	398	797	243

Terri says these 16 random numbers will **not** give Samira 16 students for her sample.

(c) Explain why Terri is correct.

Give **two** reasons.

(2)

Terri suggests that Samira should select her sample by writing all the students' names on pieces of paper, then picking them from a box without looking.

(d) Comment on whether Terri's method is appropriate.

(2)

(Total for Question 10 is 6 marks)



- 11 The table gives the average UK annual car insurance price for male drivers for each of the years 2016 and 2017

Year	2016	2017
Average car insurance price (£)	781	890

(Source: www.confused.com)

- (a) Using 2016 as the base year, calculate the index number for the average car insurance price for male drivers in 2017
Give your answer correct to the nearest whole number.

.....
(2)

The index number for the average UK annual car insurance price for female drivers for 2017 using 2016 as the base year is 113

- (b) Compare how the average UK annual car insurance prices changed from 2016 to 2017 for male drivers and for female drivers.

.....
(2)

.....
(Total for Question 11 is 4 marks)



12 Claire buys packs of sports cards.

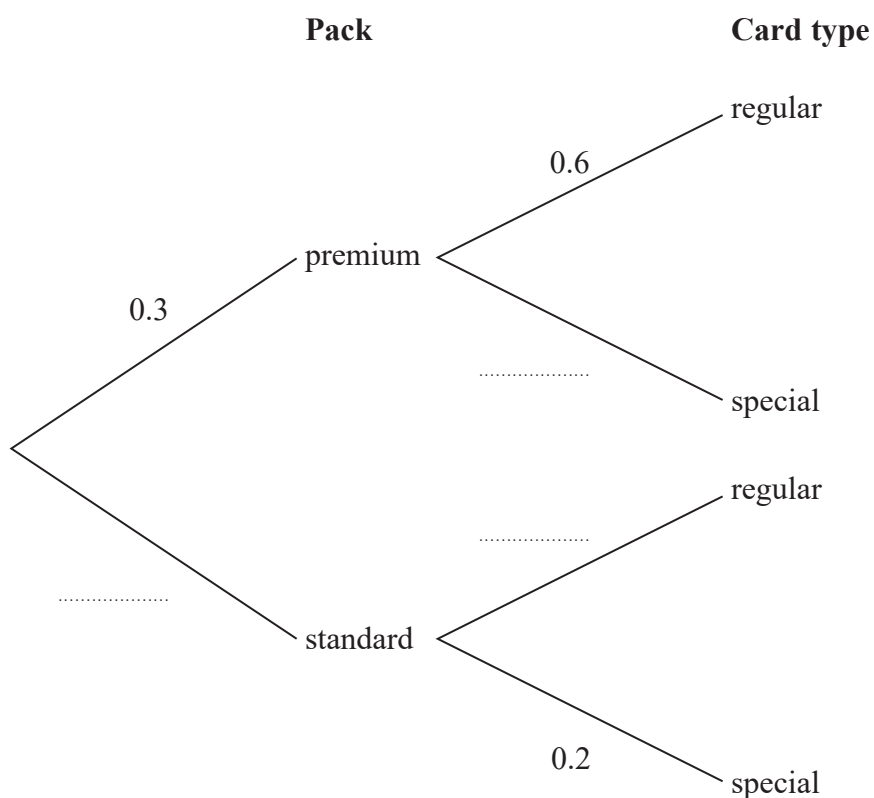
The cards can be bought in premium packs and in standard packs.

Of the packs that Claire buys, 30% are premium packs and 70% are standard packs.

In each premium pack there are 6 regular cards and 4 special cards.

In each standard pack there are 4 regular cards and 1 special card.

(a) Complete the probability tree diagram for this information.



(1)

Claire picks at random one of the packs she has bought, opens the pack and takes at random one card from the pack.

(b) Work out the probability that the card is a regular card.

(3)



Given that the card is a regular card,

(c) work out the probability that it came from a premium pack.

.....
(2)

(Total for Question 12 is 6 marks)



13 The table gives the crude birth rates in the UK and in Germany for 1965 and for 2015

Crude birth rate	1965	2015
UK	18	12
Germany	17	9

(Source: *World Bank*)

- (a) Compare the change in the crude birth rate in the UK with the change in the crude birth rate in Germany between 1965 and 2015

(2)

In 2015 Coventry in the UK had a total population of 360 000

Owen used the formula below, with the total population figure of 360 000 and the UK crude birth rate of 12, to calculate the number of births in Coventry for 2015

$$\text{Crude birth rate} = \frac{\text{number of births} \times 1000}{\text{total population}}$$

- (b) (i) Work out the result of Owen's calculation.

(2)

- (ii) Comment on the validity of Owen's calculation.

(2)

(Total for Question 13 is 6 marks)

TOTAL FOR PAPER IS 80 MARKS

