Write your name here

Surname	Other names

Pearson Edexcel Award

Centre Number	Candidate Number

Statistical Methods

Level 1
Calculator allowed

Monday 19 January 2015 – Morning
Time: 1 hour 30 minutes

Paper Reference
AST10/01

You must have:
Pen, HB pencil, eraser, calculator, ruler, protractor.

Total Marks

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.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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P 4 5 8 0 4 A 0 1 2 4

PEARSON

Answer ALL questions.

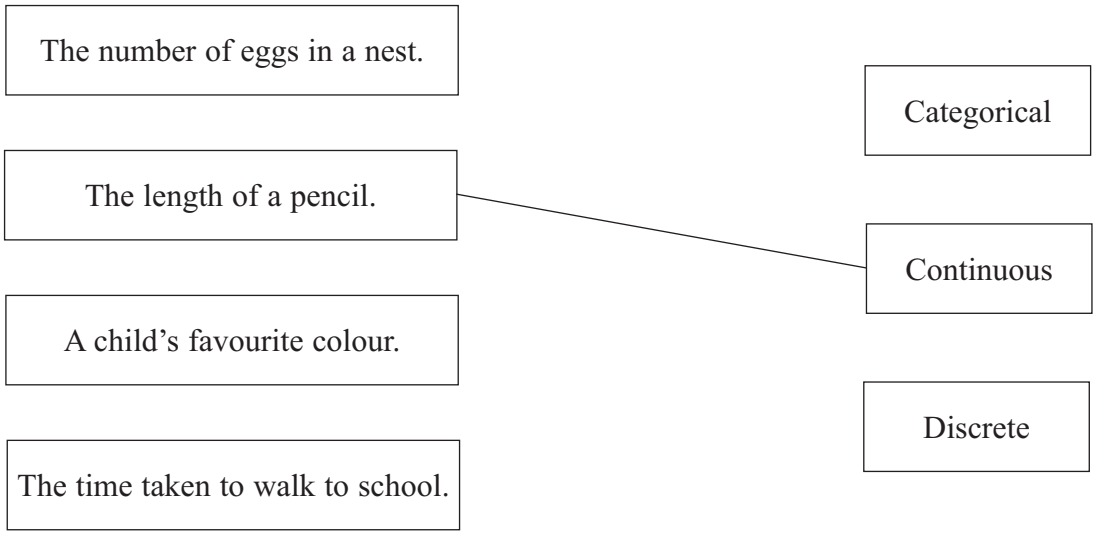
Write your answers in the spaces provided.

You must write down all stages in your working.

1 Here are four sentences giving examples of types of data.

(a) Draw a line from each sentence to the word that best describes the type of data.

One has been done for you.



(2)

Here is a list of the favourite colour of each of 18 children.

Red	Blue	Pink	Pink	Red	Red
Blue	Pink	Red	Green	Blue	Green
Green	Blue	Red	Blue	Green	Red

(b) Complete the table for this information.

Colour	**Red**	**Blue**	**Pink**	**Green**
Number of children				

(2)

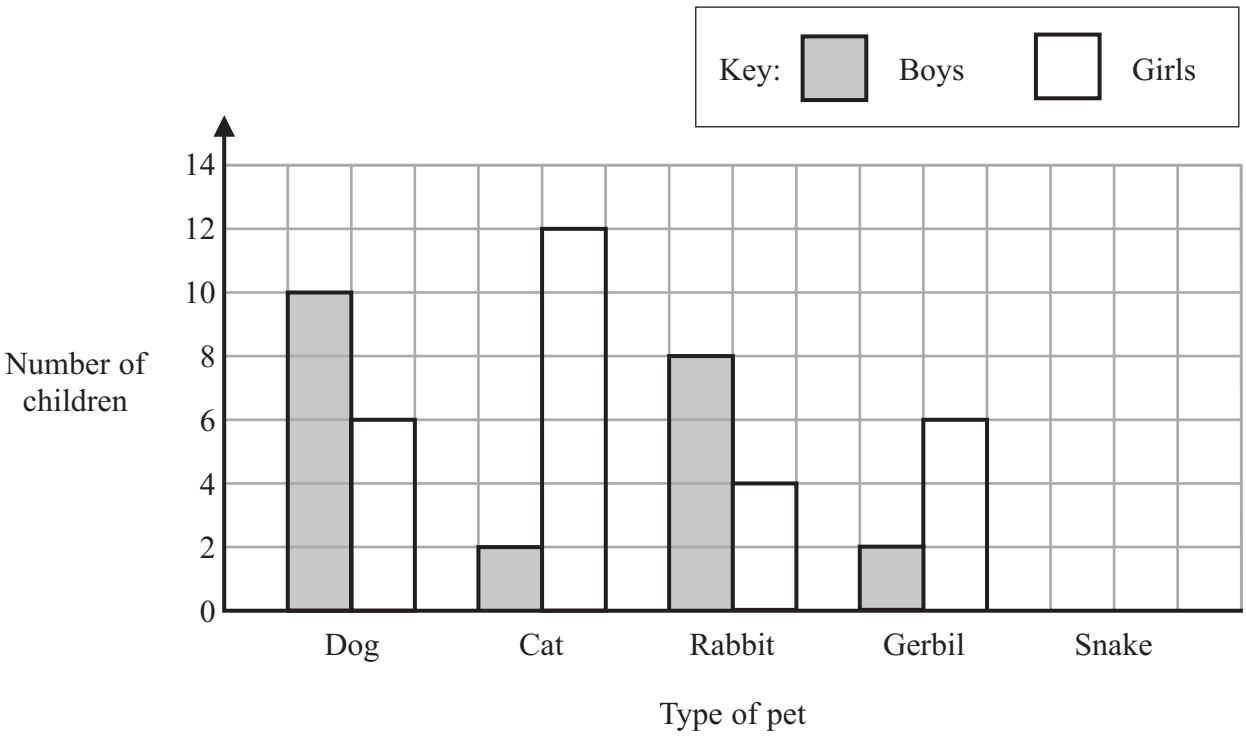
(Total for Question 1 is 4 marks)

2 The children at a Youth Club were surveyed about their favourite type of pet.

The table summarises their answers.

Favourite pet	Dog	Cat	Rabbit	Gerbil	Snake
Number of boys	10	2	8	2	6
Number of girls	6	12	4	6	2

(a) Complete the dual bar chart for this information.



(2)

(b) How many of these children answered cat?

.....

(1)

More boys than girls answered dog.

(c) How many more?

.....

(1)

(d) What was the total number of boys who were surveyed?

.....

(2)

(Total for Question 2 is 6 marks)

3 Here are some words that can be used to describe the likelihood of an event.

Certain **Likely** **Even** **Unlikely** **Impossible**

(a) Complete the sentences below with the word from the list that best describes the likelihood of the event.

(i) Getting a 7 when an ordinary dice is rolled is .....

(ii) Getting a head when a fair coin is thrown is .....

(iii) Taking a yellow ball from a bag that only contains

9 yellow balls and 1 blue ball is .....

(2)

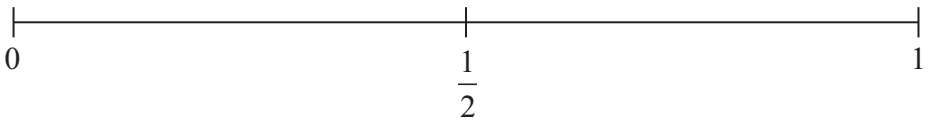
A bag of sweets contains

orange flavoured sweets
lemon flavoured sweets
strawberry flavoured sweets
and lime flavoured sweets.

There is an equal number of each flavour in the bag.

Trevor takes at random a sweet from the bag.

(b) On the probability scale, mark with a cross (×) the probability that Trevor takes a lime flavoured sweet.



(1)

(Total for Question 3 is 3 marks)

4 Billy wants to find out how many times people go to the library.

He asks this question on a questionnaire.

How many times do you go to the library?

1 – 3	3 – 5	5 – 7	7 or more
☐	☐	☐	☐

Write down two things that are wrong with this question.

1 .....

.....

2 .....

.....

(Total for Question 4 is 2 marks)

5 The table below shows the average number of hours of sunshine per day in India for each of four months.

Month	April	May	June	July
Average number of hours of sunshine per day	16	12	4	8

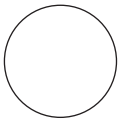
(a) Work out the difference between the average number of hours of sunshine per day in May and the average number of hours of sunshine per day in July.

.....

(1)

(b) Draw a pictogram for this information.
You must complete the key.

Key:



represents .....hours

(3)

(Total for Question 5 is 4 marks)

6 Keith has three tickets to go to the theatre.

He chooses two friends to go with him.

He chooses at random one boy from Joe, Peter and Michael, and he chooses at random one girl from Fiona and Christine.

(a) List all the possible combinations of friends that Keith could choose.
One has been done for you.

(J, F) .....

.....

.....

(2)

(b) What is the probability that Keith chooses Joe?

.....

(1)

(c) What is the probability that Keith does not choose Fiona?

.....

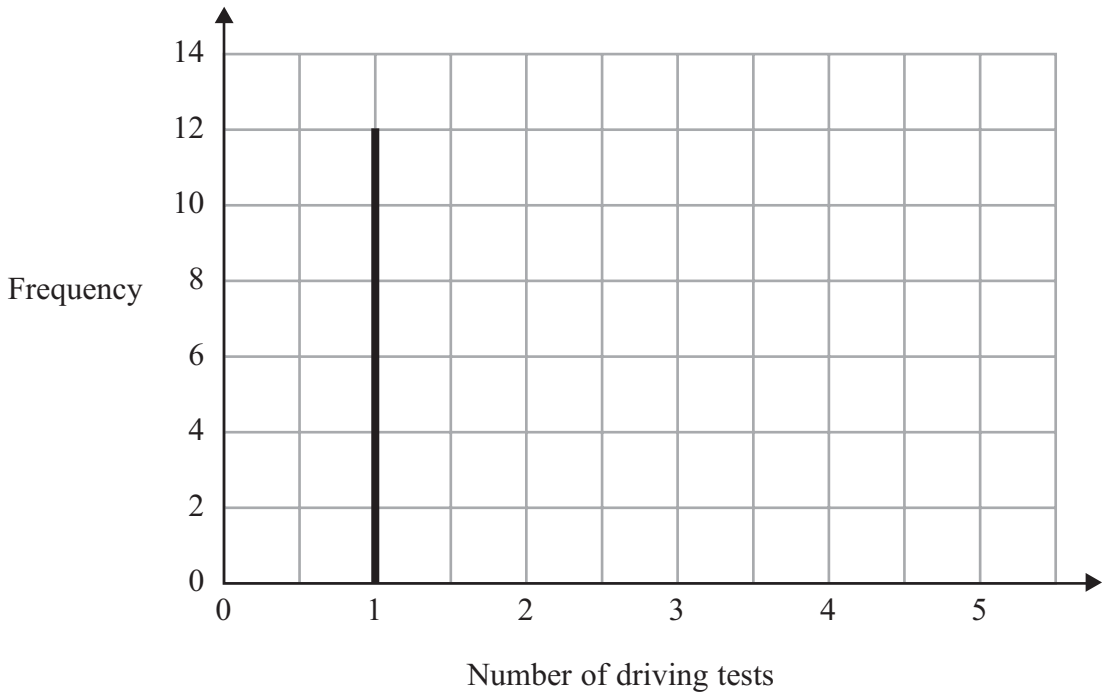
(1)

(Total for Question 6 is 4 marks)

7 Fatima asked some people how many driving tests each of them had taken.
The table gives information about her results.

Number of driving tests	Frequency
1	12
2	8
3	5
4	3
5	2

Complete a vertical line graph for the information in the table.



(Total for Question 7 is 2 marks)

8 The table shows information about five used motorcycles that are for sale.

Make	Colour	Year of manufacture	Number of miles travelled	Price (£)	Number of gears
Harley	Black	2008	12 000	11 000	5
Ducati	Silver	2010	5 000	9 500	6
Yamaha	Red	2007	26 000	5 000	6
Suzuki	Black	2009	2 800	7 500	5
Kawasaki	White	2011	3 000	5 500	6

(a) What is the price of the Ducati?

£.....

(1)

Two of these motorcycles have the same colour.

(b) Which two?

..... and .....

(1)

(c) What is the make of the oldest motorcycle?

.....

(1)

(d) What is the mode of the number of gears for these motorcycles?

.....

(1)

(e) Work out the range of the number of miles these motorcycles have travelled.

.....miles

(2)

(f) Find the median price of these motorcycles.

£.....

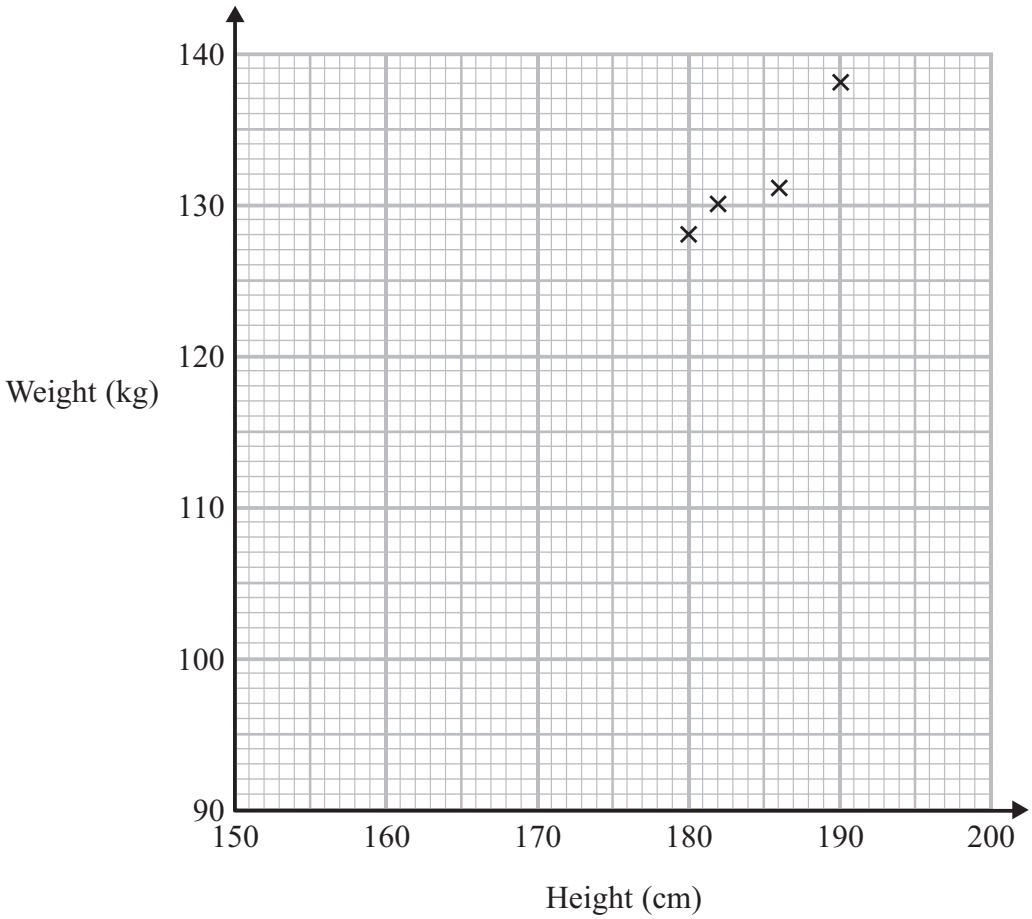
(1)

(Total for Question 8 is 7 marks)

9 The table shows the height and the weight of each of eleven rugby players.

Height (cm)	190	186	182	180	178	176	175	172	170	166	160
Weight (kg)	138	131	130	128	126	126	125	121	120	110	100

(a) On the grid, complete the scatter graph for this information.
Four points have been plotted for you.



(2)

(b) What type of correlation does the scatter graph show?

.....

(1)

(Total for Question 9 is 3 marks)

10 Emeka rolls a 6-sided dice.
He does not know whether this dice is a fair dice.

Emeka rolls the dice 120 times.
His results are shown in the table.

Score	1	2	3	4	5	6
Frequency	21	20	18	21	23	17

(a) Write down an estimate for the probability that the next time the dice is rolled the score will be 6

.....

(1)

Emeka now thinks the dice is fair.

(b) Do you agree?
Give a reason for your answer.

.....

.....

(1)

Sharon also has a 6-sided dice and rolls it 20 times.

Her results are shown in the table.

Score	1	2	3	4	5	6
Frequency	3	5	2	1	3	6

Sharon thinks that her dice is biased.

(c) What should Sharon do to see if she is correct?
Give a reason why Sharon should do this.

.....

.....

(2)

(Total for Question 10 is 4 marks)

11 The stem and leaf diagram gives information about the ages of the 21 guests at a party.

Age

2	2	4	5	8			
3	1	3	3	5	6		
4	0	3	5	7	7	7	9
5	3	6	9				
6	1	4					

Key: 6 | 4 represents 64 years

(a) Write down the mode of the ages of the guests at the party.

..... years

(1)

(b) Work out the range of the ages of the guests at the party.

..... years

(2)

One of the guests at the party is chosen at random.

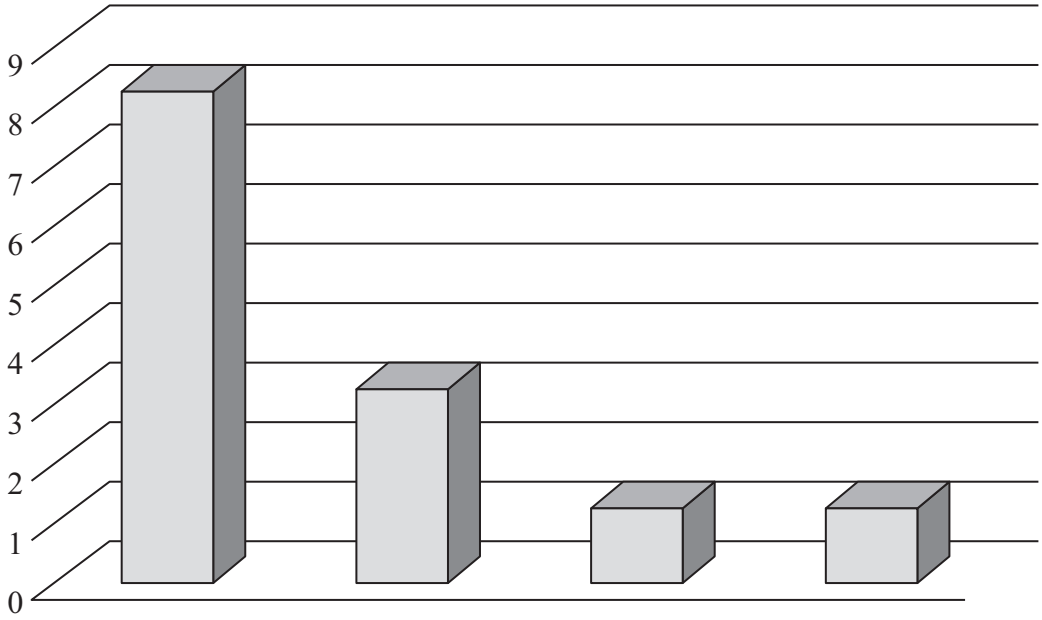
(c) Find the probability that the guest will be older than 55

.....

(1)

(Total for Question 11 is 4 marks)

12 The diagram shows information about the sales of shoes from a shop for each quarter of last year.



Write down two things that could be misleading in the diagram.

1 .....

.....

2 .....

.....

(Total for Question 12 is 2 marks)

13 Gary is going to do a survey.

He wants to find out which type of music people like the best.

Design a suitable data collection sheet for Gary to use.

(Total for Question 13 is 2 marks)

14 Here are the times, in seconds, taken by a group of people to each complete a Sudoku puzzle.

120	149	133	120	147	126
130	180	120	144	136	175

(a) Write down the mode.

..... seconds

(1)

(b) Calculate the mean time taken.

..... seconds

(3)

One of these people is chosen at random.

(c) Find the probability that the time taken by this person to complete the Sudoku puzzle was 120 seconds.

.....

(1)

(Total for Question 14 is 5 marks)

15 A factory makes t-shirts.

The t-shirts come in four sizes. The sizes are small, medium, large and extra-large.

Each size of t-shirt is available in one of four colours. The colours are red, blue, green and yellow.

The two-way table shows some information about the numbers of t-shirts made one day.

	Small	**Medium**	**Large**	**Extra-Large**	**Total**
Red		6	7	4	22
Blue	10			8	45
Green		8	8		33
Yellow	12		15	10	50
Total	34		45	32	

(a) Complete the two-way table.

(3)

(b) Write down the total number of t-shirts made that day.

.....

(1)

Sita is going to take at random a t-shirt from the t-shirts made that day.

(c) (i) Write down the probability that the t-shirt will be yellow and large.

.....

(ii) Find the probability that the t-shirt will be blue or green.

.....

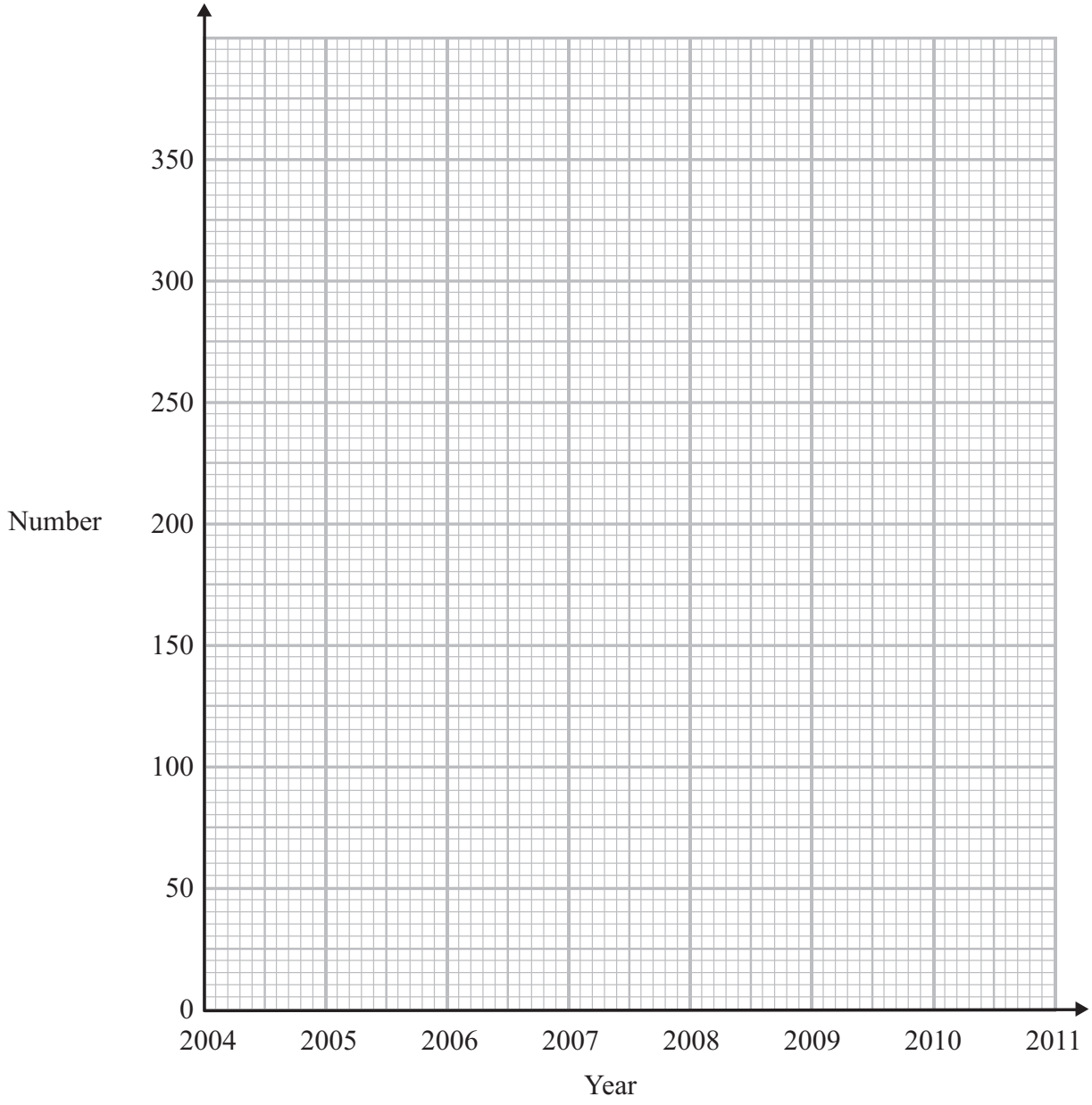
(3)

(Total for Question 15 is 7 marks)

16 The table gives information about the numbers of footballs made in a sports factory from 2004 to 2011.

Year	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Number	50	80	100	145	180	185	240	270

(a) On the grid below, draw the time-series graph for this information.



(3)

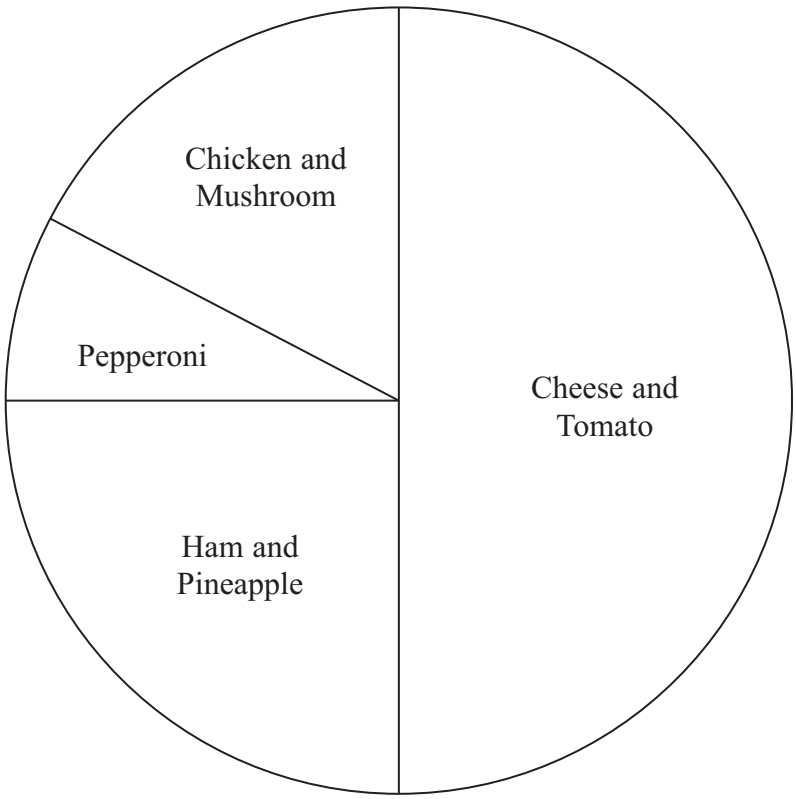
(b) Describe the trend in the number of footballs produced during this period.

.....

(1)

(Total for Question 16 is 4 marks)

17 The pie chart shows information about the different types of pizza a group of students liked best.



(a) Which type of pizza was liked best by the least number of the students?

.....

(1)

20 of the students liked Cheese and Tomato pizza best.

(b) How many of the students liked Ham and Pineapple pizza best?

.....

(2)

(Total for Question 17 is 3 marks)

18 In a bag of sweets there are blue sweets, red sweets, green sweets and yellow sweets.

The table shows the probabilities that when a sweet is taken at random from the bag, the sweet is blue or is red or is green.

Colour	Blue	Red	Green	Yellow
Probability	0.25	0.25	0.2	

John is going to take at random a sweet from the bag.

(a) (i) Work out the probability that the sweet will be blue or green.

.....

(ii) Work out the probability that the sweet will be yellow.

.....

(4)

(b) Work out the probability that the sweet will **not** be blue.

.....

(2)

(Total for Question 18 is 6 marks)

19 Here are the times taken, in seconds, by a group of girls to run 100 metres.

16.4	18.8	17.5	16.8	18.6	15.3
18.4	15.8	20.3	17.7	19.3	

(a) Find the median time.

..... seconds

(2)

A group of boys also ran 100 metres.

The times taken, in seconds, by the boys are summarised in the following table.

Median	Range
16.5	3.1

(b) (i) Compare the medians.

.....

.....

(ii) Compare the ranges.

.....

.....

(3)

(Total for Question 19 is 5 marks)

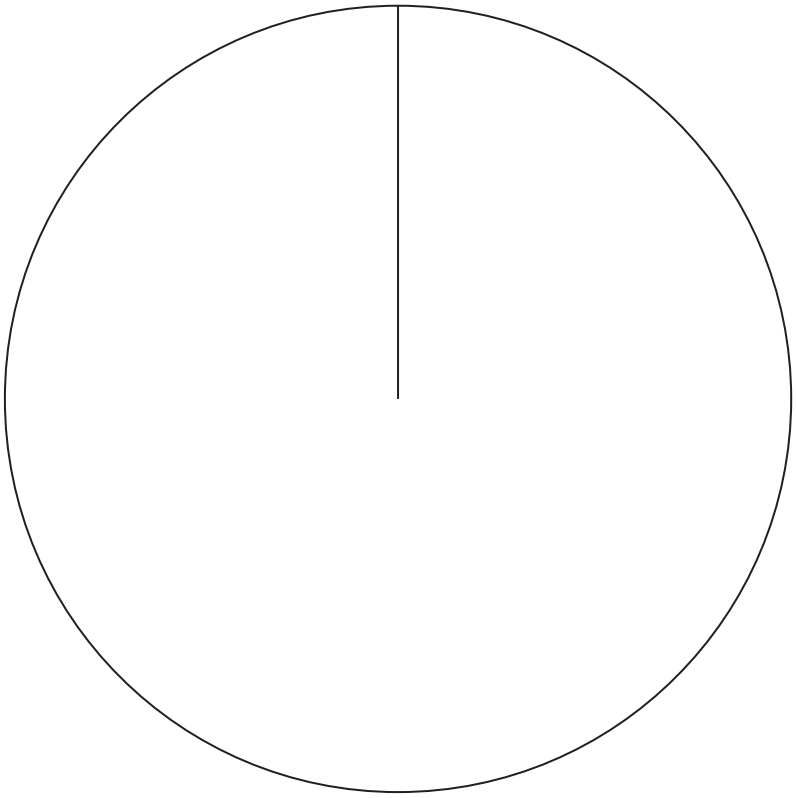
20 Tamar carried out a survey to find out the holiday destinations, in the last year, of the 36 people she worked with.

She is going to show her results in a pie chart.

The table gives information about her results.

Holiday destination	Number of people	Angle in pie chart
UK	8	
USA	5	
Europe	10	
Asia	7	
Did not go on holiday	6	

Draw a pie chart for this information.



(Total for Question 20 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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