Write your name here

Surname	Other names

Pearson Edexcel Award

Centre Number	Candidate Number

Statistical Methods

Level 1
Calculator allowed

Wednesday 10 May 2017 – 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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6/6/6/7/

P 4 8 3 4 7 A 0 1 2 0

Pearson

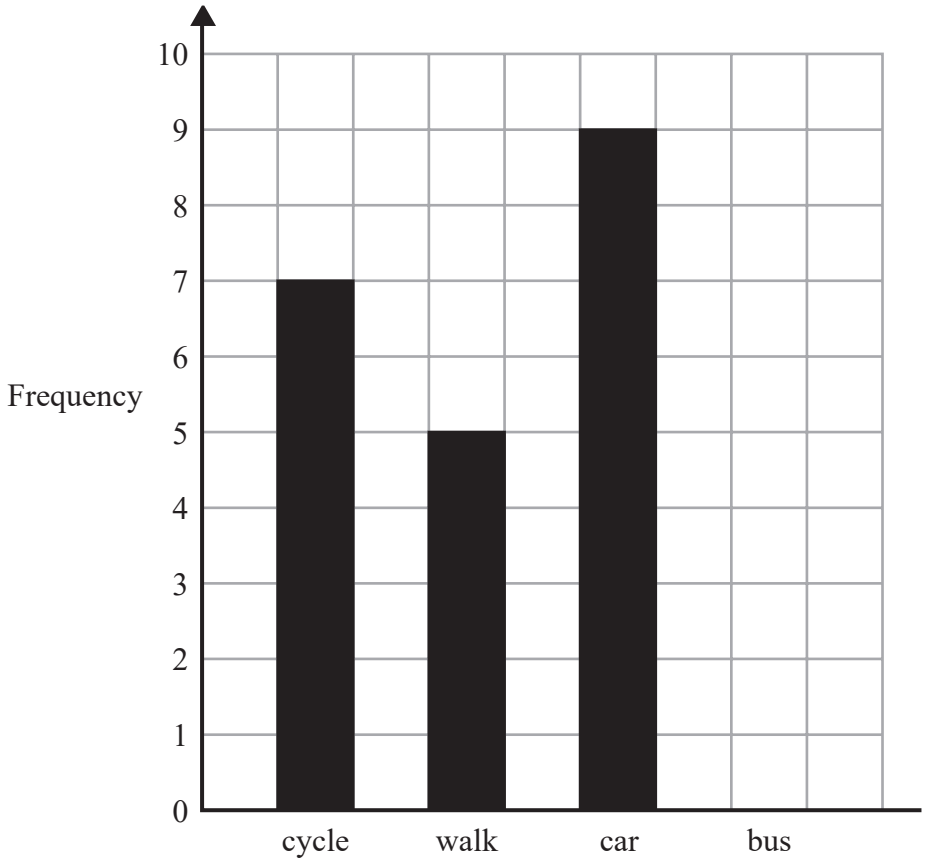
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Tom asked his friends how they travel to work each day.

This incomplete bar chart shows some information about their answers.



(a) How many of Tom's friends cycle to work each day?

.....

(1)

4 of his friends said they travel to work by bus.

(b) Complete the bar chart to show this information.

(1)

(c) How do most of Tom's friends travel to work each day?

.....

(1)

(d) How many friends did Tom ask?

.....

(1)

(Total for Question 1 is 4 marks)

2 The pictogram gives information about the number of songs Jane downloaded on each of four days last week.

Day	Number of songs downloaded
Monday	☐ ☐ ☐ ☐
Tuesday	☐ ☐ ☐
Wednesday	☐ ☐ ☐ ☐ ☐ ▯
Thursday	☐ ☐ ▫
Friday	

On Monday Jane downloaded 16 songs.

(a) Complete the key.

Key: ☐ means ..... songs downloaded

(1)

(b) Write down the number of songs Jane downloaded

(i) on Wednesday,

.....

(ii) on Thursday.

.....

(2)

On Friday Jane downloaded 11 songs.

(c) Show this information in the pictogram.

(1)

(Total for Question 2 is 4 marks)

3 (a) Underline the word that best describes the likelihood that it will rain in Scotland in 2017.

impossible unlikely evens likely certain

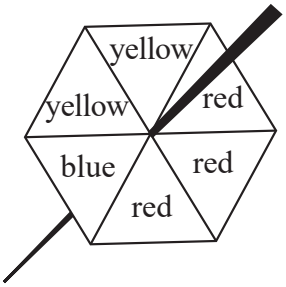
(1)

(b) Underline the word that best describes the likelihood that when an ordinary 6-sided dice is rolled it will land on 10

impossible unlikely evens likely certain

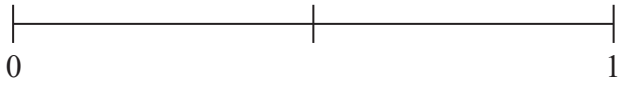
(1)

Here is a fair 6-sided spinner.



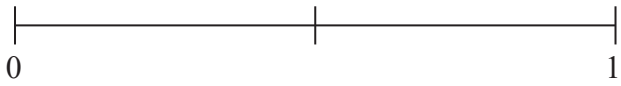
The spinner is spun once.

(c) On the probability scale, mark with a cross (×) the probability that the spinner will land on red.



(1)

(d) On the probability scale, mark with a cross (×) the probability that the spinner will land on blue.



(1)

(Total for Question 3 is 4 marks)

4 The table shows some information about 6 people.

Name	Favourite colour	Height (cm)	Total number of brothers and sisters
Albert	red	143	5
Barry	blue	152	3
Clare	green	181	1
Daljit	yellow	167	2
Eve	black	159	4
Farhan	blue	163	2

(a) Write down Barry's height.

..... cm

(1)

(b) Who has a total number of 4 brothers and sisters?

.....

(1)

(c) Who has a favourite colour of blue **and** a total number of 2 brothers and sisters?

.....

(1)

(d) How many of the people have a height greater than 160 cm?

.....

(1)

(Total for Question 4 is 4 marks)

5 Anjali carries out a survey.
She asks her friends which sport they like the best.

Design a data collection sheet that Anjali can use.

(Total for Question 5 is 2 marks)

6 Sandeep asked each of his friends what they drank before they went to bed last night.

Here are his results.

hot chocolate	coffee	water	tea	hot chocolate
tea	water	hot chocolate	water	water
hot chocolate	water	water	water	tea
coffee	tea	coffee	hot chocolate	water

(a) How many of Sandeep's friends drank tea?

.....

(1)

(b) Which drink was the most popular?

.....

(1)

(c) How many friends did Sandeep ask?

.....

(1)

(Total for Question 6 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

7 Jay is going to eat a steak at a restaurant.
He can choose one steak and one sauce.

Steak
Fillet
Sirloin
Rump

Sauce
Peppercorn
Ketchup
Horseradish

One possible combination is (Fillet, Peppercorn).

List **all** the possible combinations Jay can choose.
One has been done for you.

(F, P), ...

.....

.....

.....

(Total for Question 7 is 2 marks)

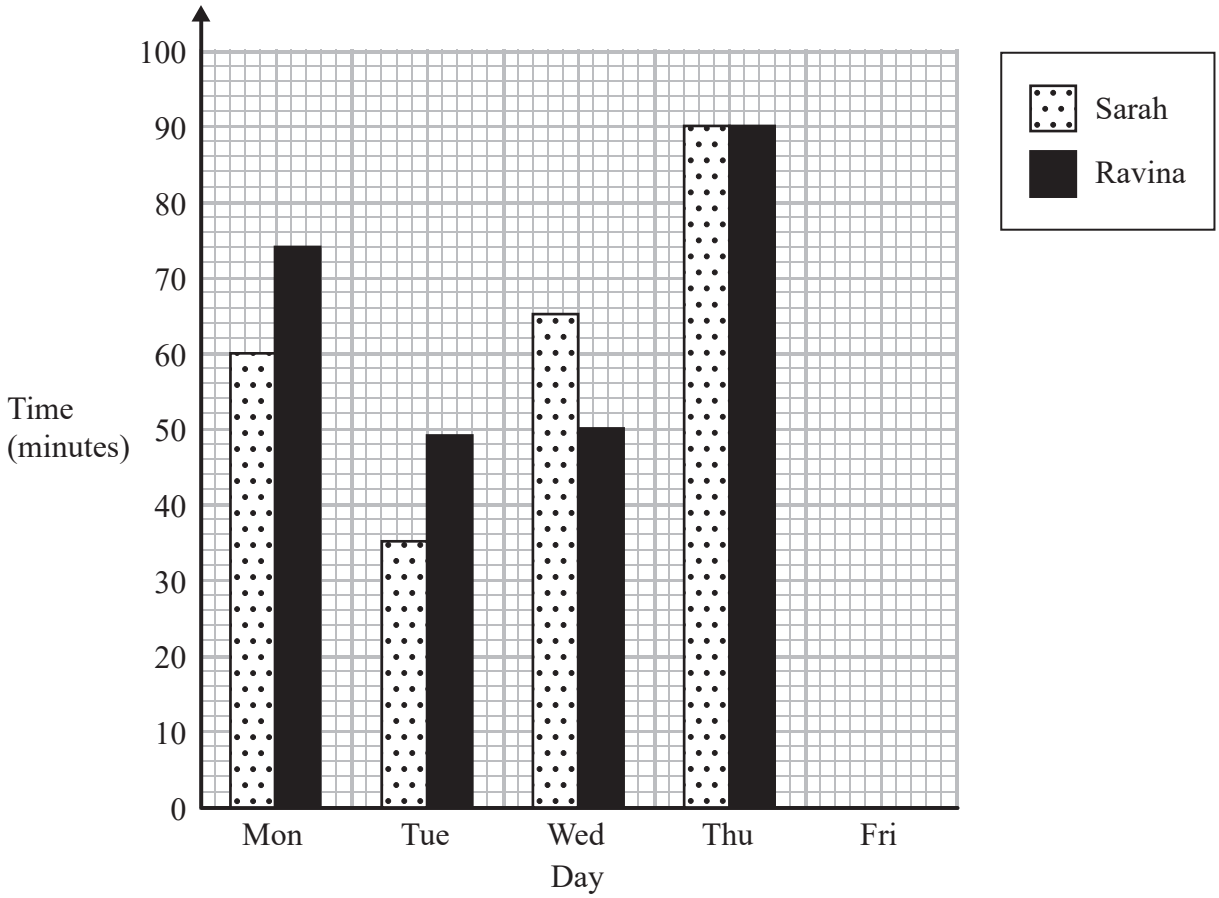
8 The probability that it will snow in January in Birmingham is 0.41

What is the probability that it will **not** snow in January in Birmingham?

.....

(Total for Question 8 is 2 marks)

9 The dual bar chart shows information about the lengths of time, in minutes, Ravina and Sarah each spent listening to music on four days last week.



(a) How many minutes did Ravina spend listening to music on Monday?

..... minutes

(1)

On one of these four days Ravina and Sarah listened to music for the same length of time.

(b) Which day?

.....

(1)

On Wednesday, Sarah spent more minutes listening to music than Ravina spent listening to music.

(c) How many more minutes?

..... minutes

(1)

On Friday, Sarah listened to music for 20 minutes and Ravina listened to music for 35 minutes.

(d) Show this information on the dual bar chart.

(2)

(Total for Question 9 is 5 marks)

10 Reuben wants to investigate the probability that toast lands butter side down when dropped.

Reuben drops buttered toast and records the number of times it lands butter side down.

On Saturday he drops buttered toast 20 times and the toast lands butter side down 7 times.

(a) Estimate the probability that the next time Reuben drops the buttered toast it will land butter side down.

.....

(1)

On Sunday Reuben drops buttered toast 60 times and the toast lands butter side down 29 times.

(b) Estimate the probability that the next time Reuben drops the buttered toast it will land butter side down.

.....

(1)

(c) Which of the two days' results gives the most reliable estimate of the probability, Saturday or Sunday?
Give a reason for your answer.

.....

.....

.....

(2)

(Total for Question 10 is 4 marks)

11 Ted has different colours of shirts in his wardrobe.

He has 8 blue shirts, 3 white shirts and 4 grey shirts.

One morning Ted takes at random a shirt from his wardrobe.

Find the probability that the shirt is

(a) blue,

.....

(2)

(b) either white or grey.

.....

(2)

(Total for Question 11 is 4 marks)

12 Dev went to India.

He recorded the number of times he was bitten by mosquitoes at night.

Here are his results.

6 1 1 11 1 2 9 12 2

(a) Work out the median.

.....

(2)

(b) Work out the mean.

.....

(2)

(c) Work out the range.

.....

(2)

The following year Dev went to South Africa.

The number of times he was bitten by mosquitoes at night in South Africa had a mean of 6.3 and a range of 6

(d) (i) Compare the means.

.....

.....

(ii) Compare the ranges.

.....

.....

(2)

(Total for Question 12 is 8 marks)

13 David collected some information about the lengths, in mm, of 25 leaves.

He drew this stem and leaf diagram for this information.

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

Key:

5 | 6 means 56 mm

(a) Write down the modal length of the leaves.

..... mm

(1)

(b) Work out the range.

..... mm

(2)

One of these leaves is chosen at random.

(c) Find the probability that the length of this leaf is less than 60 mm.

.....

(1)

(Total for Question 13 is 4 marks)

14 Dylan recorded the number of sweets he ate each day for the last 30 days.

Here are his results.

1	3	4	5	3	1	1	2	3	4
5	5	4	3	2	1	2	3	4	4
5	1	4	3	2	2	1	4	5	5

(a) Complete the frequency table for his results.

Number of sweets	Tally	Frequency
1		
2		
3		
4		
5		

(3)

(b) Write down the mode of the numbers of sweets.

.....

(1)

(c) Work out the total number of sweets Dylan ate.

.....

(2)

(Total for Question 14 is 6 marks)

15 80 children were asked what they most dislike doing when they arrive home after school.

The incomplete two-way table gives some information about the children and their answers.

	homework	cleaning	something else	Total
boys	13			33
girls		23		
Total	22	37		80

(a) Write down the number of children whose answer was homework.

.....

(1)

(b) Complete the two-way table.

(3)

One of the 80 children is going to be chosen at random.

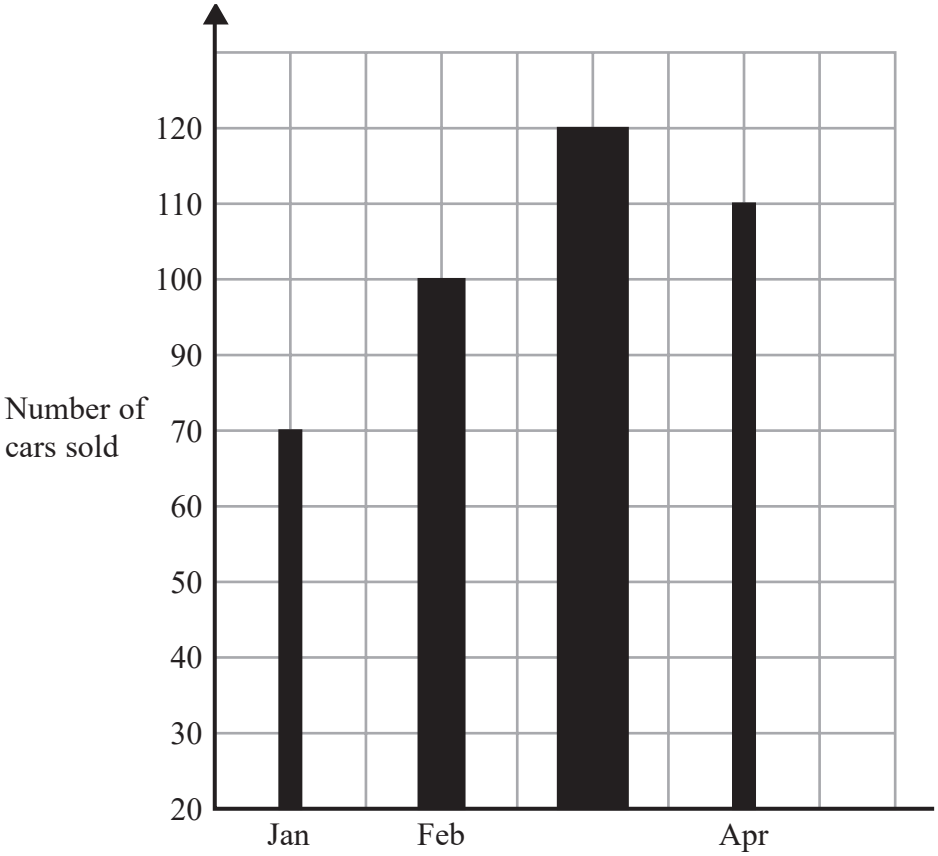
(c) Find the probability that the child is a girl whose answer was either homework or cleaning.

.....

(2)

(Total for Question 15 is 6 marks)

16 The bar chart gives information about the numbers of cars sold from a showroom.



Write down two things that could be misleading or are wrong with the bar chart.

1 .....

.....

2 .....

.....

(Total for Question 16 is 2 marks)

17 There are only red bricks, green bricks, pink bricks and blue bricks in a box.

The table shows each of the probabilities that a brick taken at random from the box will be red or green or pink.

Colour	red	green	pink	blue
Probability	0.12	0.37	0.24	

A brick is to be taken at random from the box.

Work out the probability that

(i) the brick will be green or pink,

.....

(ii) the brick will be red or blue.

.....

(Total for Question 17 is 4 marks)

18 Neha wants to find out how often her friends go to the opera.

She uses this question on a questionnaire.

"How many times do you go to the opera?"

Not very often	Sometimes	A lot

Write down two things that are wrong with this question.

1 .....

.....

2 .....

.....

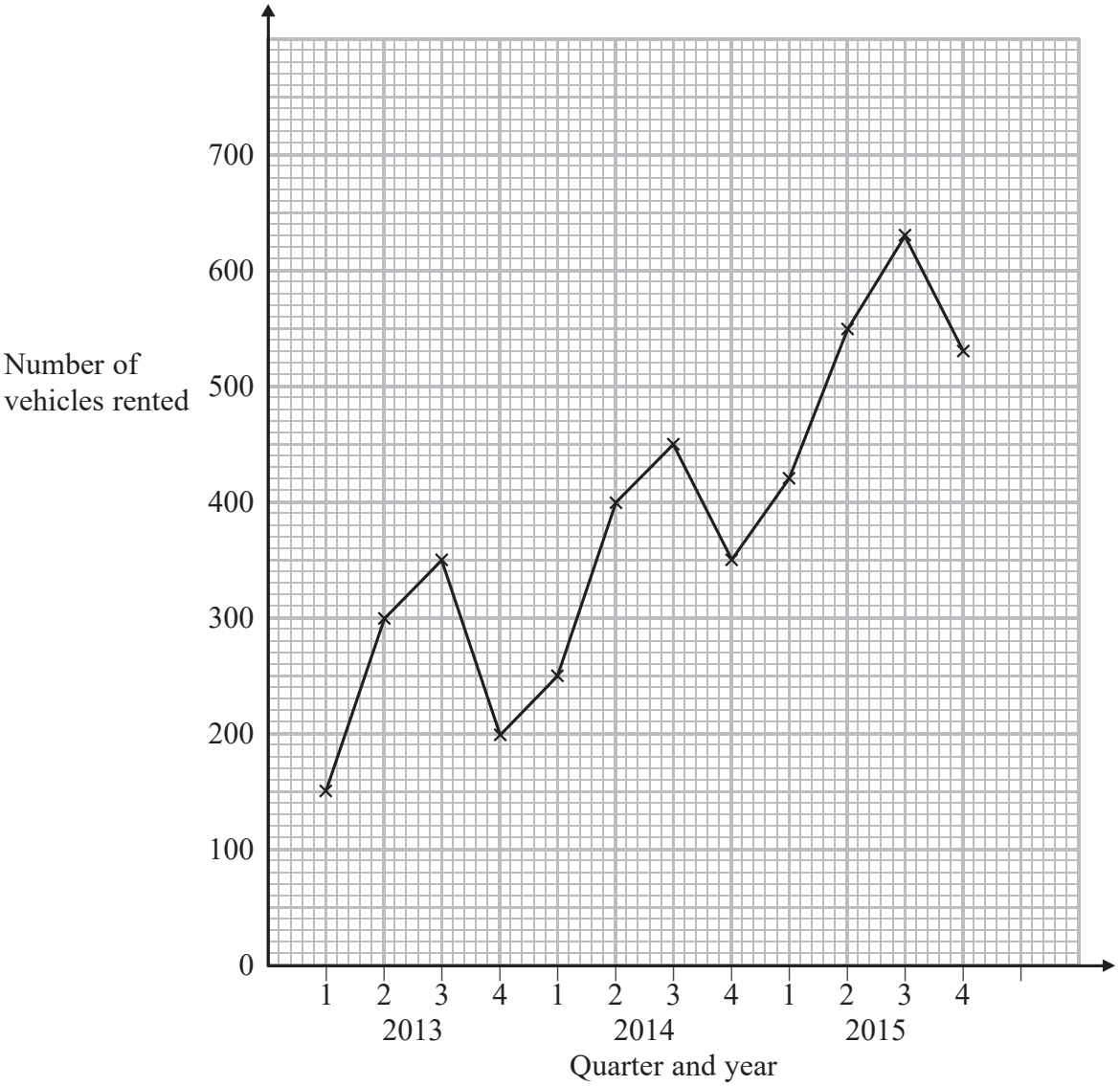
(Total for Question 18 is 2 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

19 The time-series graph gives information about the number of vehicles rented from a garage each quarter from 2013 to 2015.



(a) Describe the trend in the number of vehicles rented during this period.

.....

(1)

(b) Work out the total number of vehicles rented in quarter 3 during this period.

.....

(2)

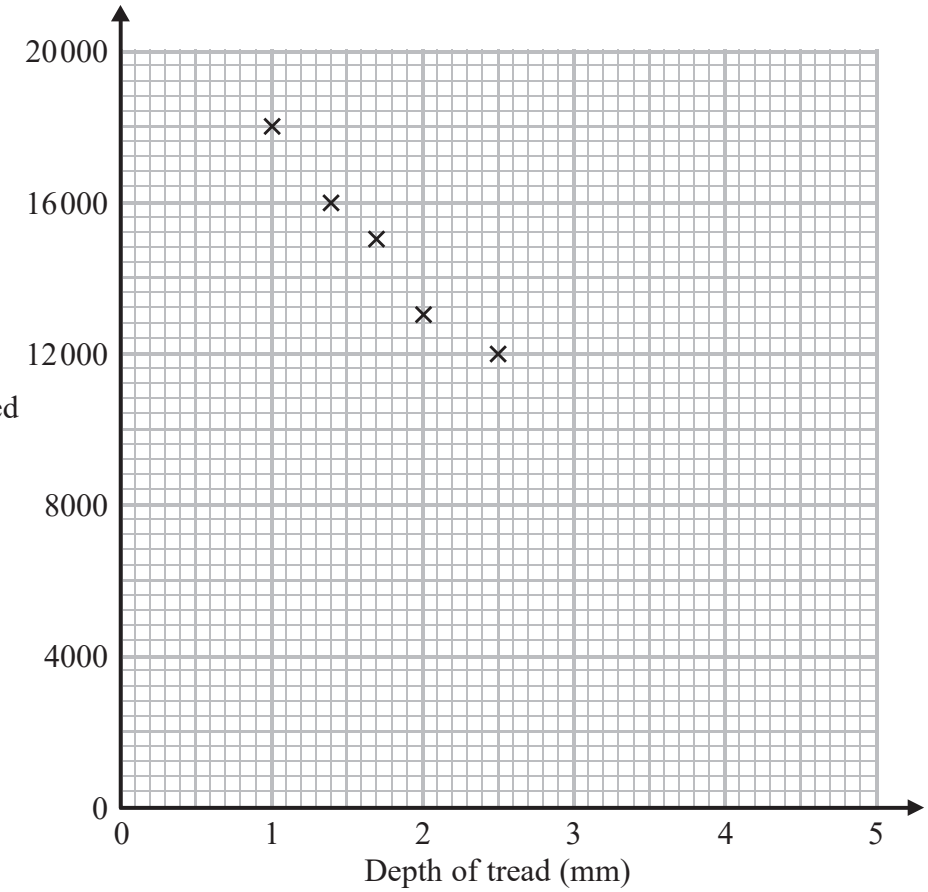
(c) Find an estimate for the number of vehicles rented in quarter 1 of 2016.

.....

(1)

(Total for Question 19 is 4 marks)

20 The scatter graph and the table give information about the distances travelled, in miles, and the depths of tread, in mm, for the tyres of some cars.



Depth of tread (mm)	3.0	3.6	4.1
Distance travelled (miles)	11000	10000	8000

(a) Show the information in the table on the scatter graph.

(2)

(b) Describe the type of correlation shown in the scatter graph.

.....

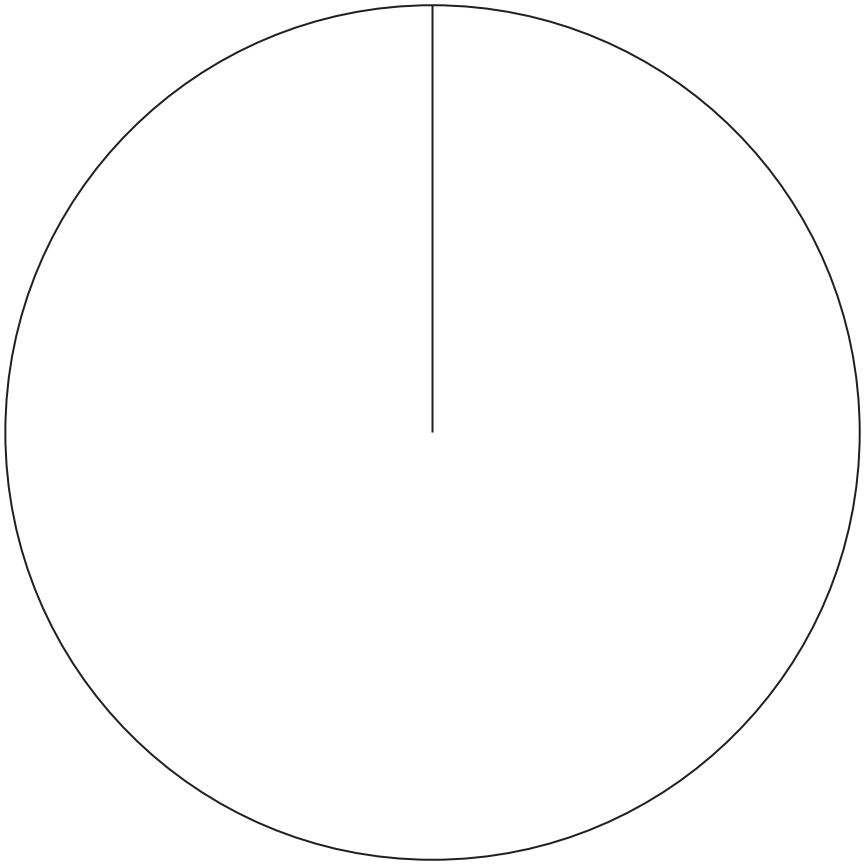
(1)

(Total for Question 20 is 3 marks)

21 The table gives information about 60 vehicles passing through the Channel Tunnel.

Type of vehicle	Frequency
motorcycle	15
bus	20
car	25

Complete the pie chart for this information.



(Total for Question 21 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS