Statistics

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1) June 2	010 V3							
1	During one we	ek in April, in	Quebec, the d	aily minimu	n temperatures	were		
	−5°C,	−1°C,	3°С,	2°C,	−2°C,	0°C,	6°C.	
	Write down							
	(a) the lowest	of these temp	eratures,					
					Answer(a)		°C [1]
	(b) the range	of these tempe	ratures.					
					Answer(b)	<u></u>	°C [1]
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			****					~

2) November 2011 V3

9 In Vienna, the mid-day temperatures, in °C, are recorded during a week in December. This information is shown below.

-2 2 1 -3 -1 -2 0

Calculate

- (a) the difference between the highest temperature and the lowest temperature,
- (b) the mean temperature.

Answer(b) °C [2]

Answer(a) °C [1]

3) June 2012 V1

6 Leon scores the following marks in 5 tests.

8 4 8 y 9

His mean mark is 7.2.

Calculate the value of *y*.

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Answer y = [2]

4) November 2014 V1

4 Cheryl recorded the midday temperatures in Seoul for one week in January.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature (°C)	-4	-5	-3	-11	-8	-3	-1

(a) Write down the mode.

Answer(a) °C [1]

(b) On how many days was the temperature lower than the mode?

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5) June 2015 V2

4 7 9 20 3 9

(a) A number is removed from this list and the median and range do not change.

Write down this number.

(b) An extra number is included in the original list and the mode does not change.

Write down a possible value for this number.

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7) June 2016 V2

Shahruk plays four games of golf. His four scores have a mean of 75, a mode of 78 and a median of 77.

Work out his four scores.

6 James is an animal doctor.

The table shows some information about the cats he saw in one week.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of cats seen	2	4	1	3	2
Mean mass of a cat (kg)	1.9	0.9	2.1	1.8	2

One of the cats James saw had a mass of 4 kg.

On which day did he see this cat?

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8) November 2012 V2

6 In a traffic survey of 125 cars the number of people in each car was recorded.

	1	i	1		1
Number of people in each car	1	2	3	4	5
Frequency	50	40	10	20	5
Find					
(a) the range,					
		Ans	wer(a)		[1
b) the median,					
		Ans	wer(b)		[1
c) the mode.					
		Ans	wer(c)		[1
	0		H		
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9) June 2013 V2

20 The heights, in metres, of 200 trees in a park are measured.

Height (<i>h</i> m)	$2 < h \le 6$	$6 < h \le 10$	$10 < h \le 13$	$13 < h \le 17$	$17 < h \le 19$	$19 < h \le 20$
Frequency	23	47	45	38	32	15

(a) Find the interval which contains the median height.

Answer(a) [1]

(b) Calculate an estimate of the mean height.

Answer(b) m [4]

(c) Complete the cumulative frequency table for the information given in the table above.

Cumulative frequency 23.1. Of Maths.com	Height (<i>h</i> m)	$2 < h \le 6$	$h \le 10$	$h \le 13$	$h \le 17$	<i>h</i> ≤ 19	$h \le 20$
	Cumulative frequency	(23)///	1. 28	Ma	ths.c	om	

10) November 2015 V2

22 The table shows information about the numbers of pets owned by 24 students.

Number of pets	0	1	2	3	4	5	6
Frequency	1	2	3	5	7	3	3

(a) Calculate the mean number of pets.

- *Answer(a)*[3]
- (b) Jennifer joins the group of 24 students.When the information for Jennifer is added to the table, the new mean is 3.44.

Calculate the number of pets that Jennifer has.

WWW. Q8 Malls.com [3]

11) March 2016 V2	
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16 Raj measures the height, h cm, of 70 plants. The table shows the information.

Height (<i>h</i> cm)	$10 < h \le 20$	$20 < h \le 40$	$40 < h \le 50$	$50 < h \le 60$	$60 < h \le 90$
Frequency	7	15	27	13	8

Calculate an estimate of the mean height of the plants.

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13) November 2012 V1

18 Lauris records the mass and grade of 300 eggs. The table shows the results.

Mass (x grams)	$30 < x \le 40$	$40 < x \le 50$	$50 < x \le 60$	$60 < x \le 70$	$70 < x \le 80$	$80 < x \le 90$
Frequency	15	48	72	81	54	30
Grade	small		medium	large	very	large

(a) Find the probability that an egg chosen at random is graded very large.

Answer(a) [1]

(b) The cumulative frequency diagram shows the results from the table.



14) November 2013 V2

20 During one day 48 people visited a museum. The length of time each person spent in the museum was recorded. The results are shown on the cumulative frequency diagram.



15) November 2013 V3

18 A gardener measured the lengths of 50 green beans from his garden.The results have been used to draw this cumulative frequency diagram.





18 72 students are given homework one evening.

They are told to spend no more than 100 minutes completing their homework. The cumulative frequency diagram shows the number of minutes they spend.





Mass (<i>m</i> grams)	$496 < m \le 500$	$500 < m \le 504$	$504 < m \le 508$	$508 < m \le 510$
Frequency density	4			

[2]







The cumulative frequency diagram shows information about the times, in minutes, taken by 80 students to complete a short test.

Find

(a) the median,

Answer(a) min [1]

(b) the 30th percentile,

WWW. Q8 Mathematical Answer(b) 100 min [2]

(c) the number of students taking more than 5 minutes.



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23) June 2018 V1

18 The cumulative frequency diagram shows information about the time, m minutes, taken by 120 students to complete some homework.



(b) the number of students who took more than 50 minutes to complete the homework.

.....[2]

24) June 2012 V3

7

Height $(h \text{ cm})$	$0 \le h \le 10$	10 < <i>h</i> ≤ 15	$15 \le h \le 30$
Frequency	25	U	9
Frequency density	2.5	4.8	ν

The table shows information about the heights of some flowers.

Calculate the values of u and v.

Answer $u =$
$\nu = $ [2]
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25) November 2012 V3

12

Mass of parcel (<i>m</i> kilograms)	$0 < m \le 0.5$	$0.5 < m \le 1.5$	$1.5 < m \le 3$
Frequency	20	18	9

The table above shows information about parcels in a delivery van.

John wants to draw a histogram using this information. Complete the table below.

Mass of parcel (<i>m</i> kilograms)	$0 < m \le 0.5$	$0.5 < m \le 1.5$	$1.5 < m \le 3$
Frequency density		18	
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		1 [7 ~ U

26) June 2016 V2 Deborah records the number of minutes late, *t*, for trains arriving at a station. 20 The histogram shows this information. 30 20 Frequency density 10-0 5 10 15 20 25Number of minutes late (a) Find the number of trains that Deborah recorded. (b) Calculate the percentage of the trains recorded that arrived more than 10 minutes late. www.Q8Maths.com

.....%[2]

27) November 2016 V3

22 The table shows some information about the mass, m grams, of 200 bananas.

Mass (<i>m</i> grams)	$90 < m \leq 110$	$110 < m \le 120$	$120 < m \le 125$	$125 < m \le 140$
Frequency	40	70	60	30
Height of column in histogram (cm)			6	

Complete the table.

28) June 2018 V2

[4]

13 The histogram shows information about the time, t minutes, spent in a shop by each of 80 people.



Complete the frequency table.

Time (<i>t</i> minutes)	$0 \le t \le 5$	$5 \le t \le 15$	$15 \le t \le 30$	$30 \le t \le 50$	$50 \le t \le 70$
Number of people	6		27		10

[2]



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30) November 2012 V2

Number of replies

0

16 A company sends out ten different questionnaires to its customers. The table shows the number sent and replies received for each questionnaire.

	Questionnaire	А	В	С	D	Е	F	G	Н	Ι	J	
	Number sent out	100	125	150	140	70	105	100	90	120	130	
	Number of replies	24	30	35	34	15	25	22	21	30	31	
40												
25												
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20-												
15-												
10-												
5-												

(a) Complete the scatter diagram for these results. The first two points have been plotted for you.

30

20

10

[2]

[1]

150

140

(b) Describe the correlation between the two sets of data.

 $\dot{40}$

50

60

WWW. Q8 MAnswer(b) [1]

80

70

Number sent out

90

100

110

120 130

(c) Draw the line of best fit.

31) June 2013 V2

17 The owner of a small café records the average air temperature and the number of hot drinks he sells each day for a week.

Air temperature (°C)	18	23	19	23	24	25	20
Number of hot drinks sold	12	8	13	10	9	7	12

(a) On the grid, draw a scatter diagram to show this information.



(b) What type of correlation does your scatter diagram show?

	Answer(b)	[1]
	OSOM H	
(c)	Draw a line of best fit on the grid.	[1]

32) March 2015 V2

1 The number of hot drinks sold in a café decreases as the weather becomes warmer.

What type of correlation does this statement show?



33) June 2018 V2

21 The scatter diagram shows the value, in thousands of dollars, of eight houses in 1996 and the value of the same houses in 2016.



14 60 students recorded their favourite drink. The results are shown in the pie chart.



(a) Calculate the angle for the sector labelled Lemonade.

Answer(a) [1]

(b) Calculate the number of students who chose Banana shake.

Answer(b) [1]

(c) The pie chart has a radius of 3 cm. Calculate the arc length of the sector representing Cola.

Answer(c) cm [2]

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35) November 2011 V2

16 In a survey of 60 cars, the type of fuel that they use is recorded in the table below.

Each car only uses one type of fuel.

Petrol	Diesel	Liquid Hydrogen	Electricity		
40	12	2	6		

(a) Write down the mode.

Answer(a) [1]

(b) Olav drew a pie chart to illustrate these figures.

Calculate the angle of the sector for Diesel.

Answer(b) [2]

(c) Calculate the probability that a car chosen at random uses Electricity.

Write your answer as a fraction in its simplest form.

Answer(c) [2]

36) November 2013 V2 Bruce plays a game of golf. His scores for each of the 18 holes are shown below. The information is to be shown in a pie chart. Calculate the sector angle for the score of 4. www.Q8Maths.com



A travel brochure has 72 holidays in four different countries. The pie chart shows this information.

(a) There are 24 holidays in Thailand.

Show that the sector angle for Thailand is 120°.

Answer(a)

(b) The sector angle for Malaysia is 150°.
The sector angle for Singapore is twice the sector angle for Hong Kong.

Calculate the number of holidays in Hong Kong.

[2]

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38) June 2014 V3

2 Michelle sells ice cream.

The table shows how many of the different flavours she sells in one hour.

F	Flavour	Vanilla	Strawberry	Chocolate	Mango
N	Number sold	6	8	9	7

Michelle wants to show this information in a pie chart.

Calculate the sector angle for mango.

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39) November 2014 V3

4 The four sector angles in a pie chart are $2x^{\circ}$, $3x^{\circ}$, $4x^{\circ}$ and 90° .

Find the value of *x*.

Answer $x = \dots$ [2]

40) June 2018 V1

23 40 people were asked how many times they visited the cinema in one month. The table shows the results.

Number of cinema visits	0	<u>1</u>	2	3	4	5	6	7
Frequency	5	5	6	6	7	3	6	2

- (a) (i) Find the mode.
 - (ii) Calculate the mean.

(b) Omar wants to show the information from the table in a pie chart.

Calculate the sector angle for the people who visited the cinema 5 times.

.....[1]

.....[3]

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