Statistics – 2022 GCSE Mathematics Higher

1. June/2022/Paper_J560/04/No.10

A student is researching the difference in how much exercise adults and children do.
To collect their data, the student interviews the first 25 people found in the High Street at 11 am on one Monday morning.

(a) Make **three** different criticisms of the student's method of collecting data.

1 .....

.....

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2 .....

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3 .....

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..... **[3]**

(b) Here is the data collection table that the student used.

Hours exercised in a week (h)	Adult tally	Child tally
$0 \leqslant h \leqslant 2$		
$2 \leqslant h \leqslant 4$		
$4 \leqslant h \leqslant 8$		
$8 \leqslant h \leqslant 12$		
$12 \leqslant h \leqslant 20$		

Make **one** criticism of the student's table.

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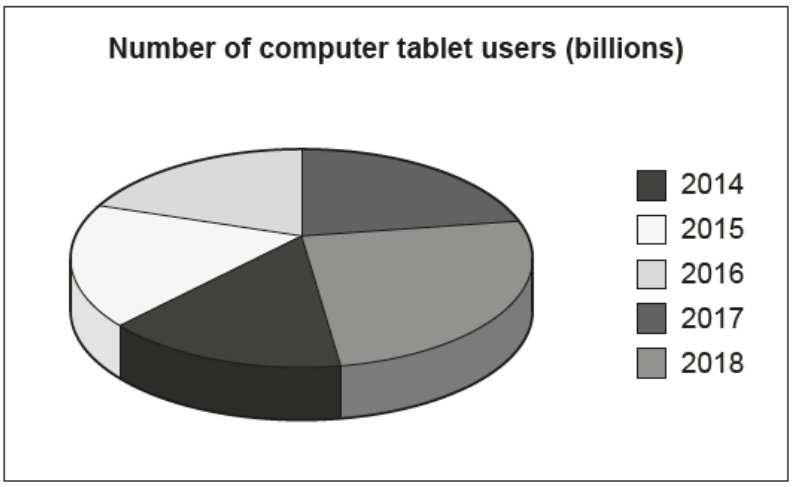
..... **[1]**

2. June/2022/Paper_J560/05/No.1

Two pupils are given data that shows the estimated number of computer tablet users worldwide from 2014 to 2018.

(a) Li creates this pie chart to show the data.



Write down two reasons why Li's pie chart is not suitable to represent the data.

1 .....

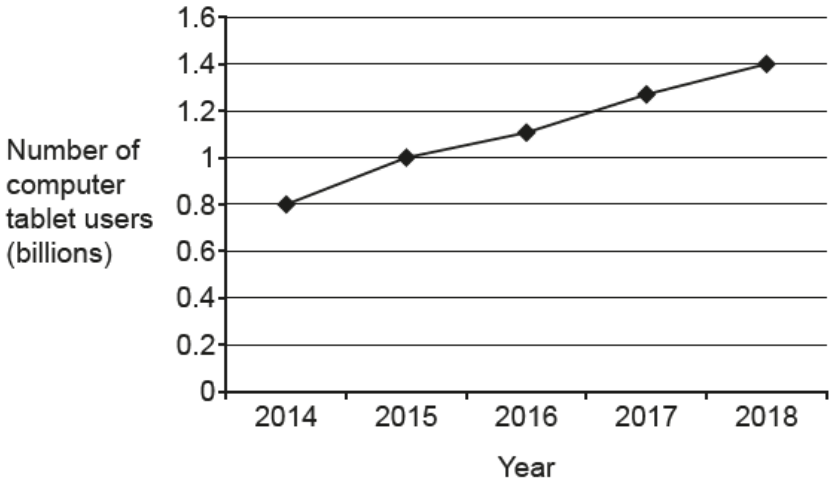
.....

2 .....

.....

[2]

(b) Amaya creates this line graph to show the same data.



Work out the percentage increase in the number of computer tablet users from 2014 to 2018.

(b) ..... % **[4]**

3. June/2022/Paper_J560/06/No.13

A car registration plate has two letters, a number from 10–99 and three letters.
For example:

AB56 CDE

The letters I and O are not used, leaving 24 possible letters.

Show that there are approximately 720 million possible car registration plates of this form. **[4]**

4. June/2022/Paper_J560/06/No.15

80 cyclists take part in a race.
A summary of their times is shown in the table.

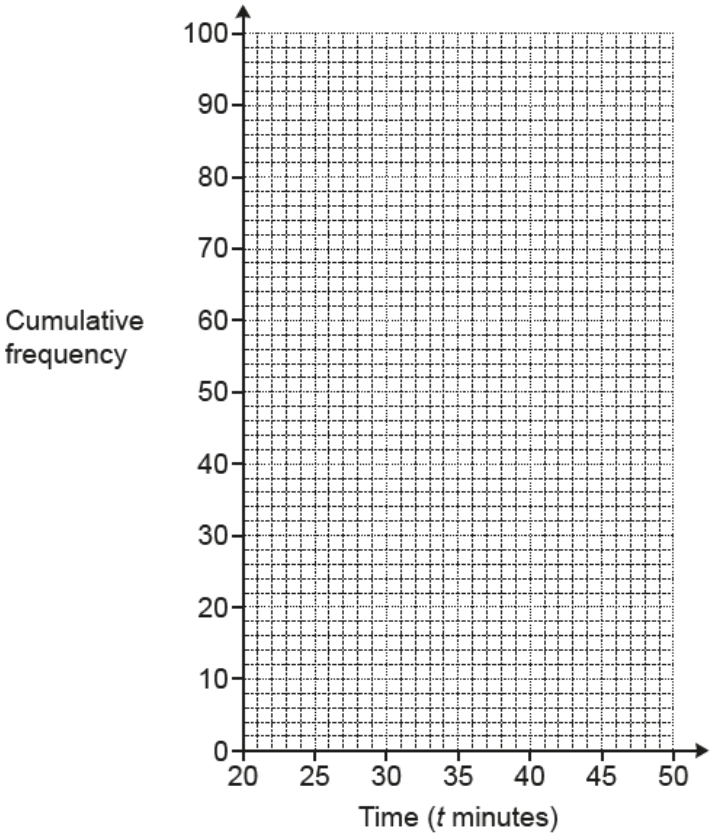
Time (t minutes)	Frequency
$20 < t \leqslant 25$	5
$25 < t \leqslant 30$	15
$30 < t \leqslant 35$	24
$35 < t \leqslant 40$	25
$40 < t \leqslant 45$	7
$45 < t \leqslant 50$	4

(a) Complete the cumulative frequency table.

Time (t minutes)	Cumulative frequency
$t \leqslant 25$	5
$t \leqslant 30$	
$t \leqslant 35$	
$t \leqslant 40$	
$t \leqslant 45$	
$t \leqslant 50$	

[2]

(b) Draw the cumulative frequency graph to show the information.



[3]

(c) Reece makes two comments about the times taken to complete the race.

For each comment, decide if Reece is right or wrong and give a reason for your answer.

(i) $\frac{3}{4}$ of the 80 cyclists took more than 30 minutes to complete the race.

Reece is ..... because .....

.....

..... **[2]**

(ii) The longest time that any of the 80 cyclists took to complete the race must have been 50 minutes.

Reece is ..... because .....

..... **[1]**