

# P8- Time Series Graphs

OCR

20 A person's maximum heart rate, in beats per minute, can be calculated using this formula.

Created by W Neill

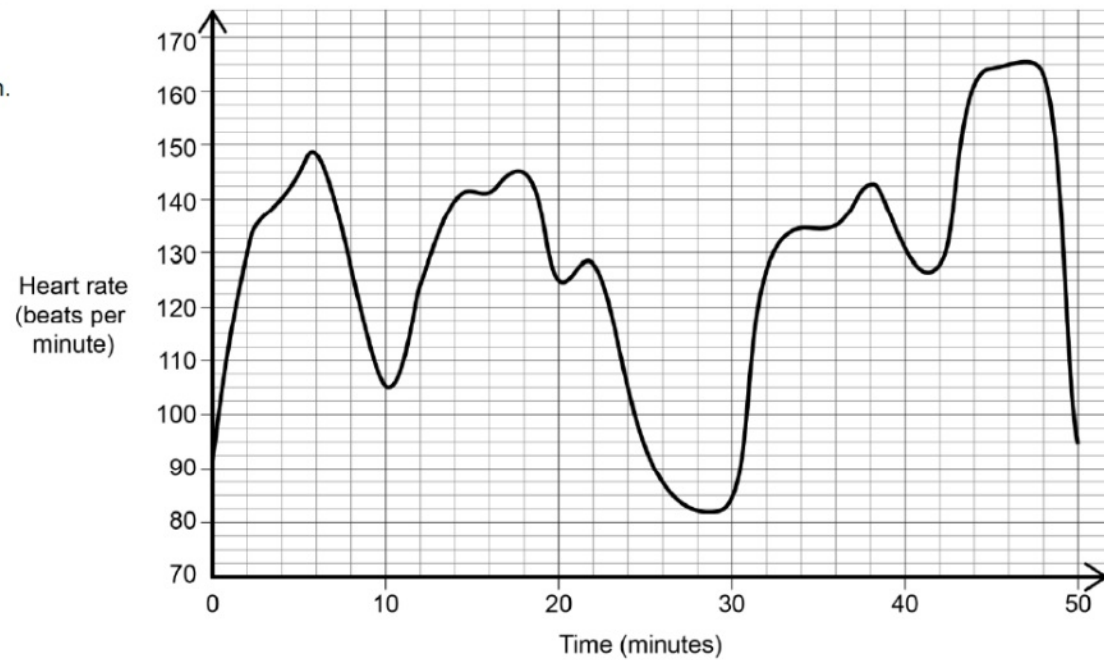
$$\text{Maximum heart rate} = 220 - \text{age in years}$$

This table gives information about a person's expected heart rate while they are exercising.

Exercise intensity		Heart rate zone
Exercise zone	Peak	Greater than 85% of maximum heart rate
	Cardio	Between 70% and 85% of maximum heart rate
	Fat burn	Between 50% and 70% of maximum heart rate
Out of exercise zone		Below 50% of maximum heart rate

(a) Use the formula to calculate Zoe's maximum heart rate.

Zoe is 45 years old.  
She wears a heart rate monitor while she is exercising.  
The graph shows her heart rate during her exercise session.



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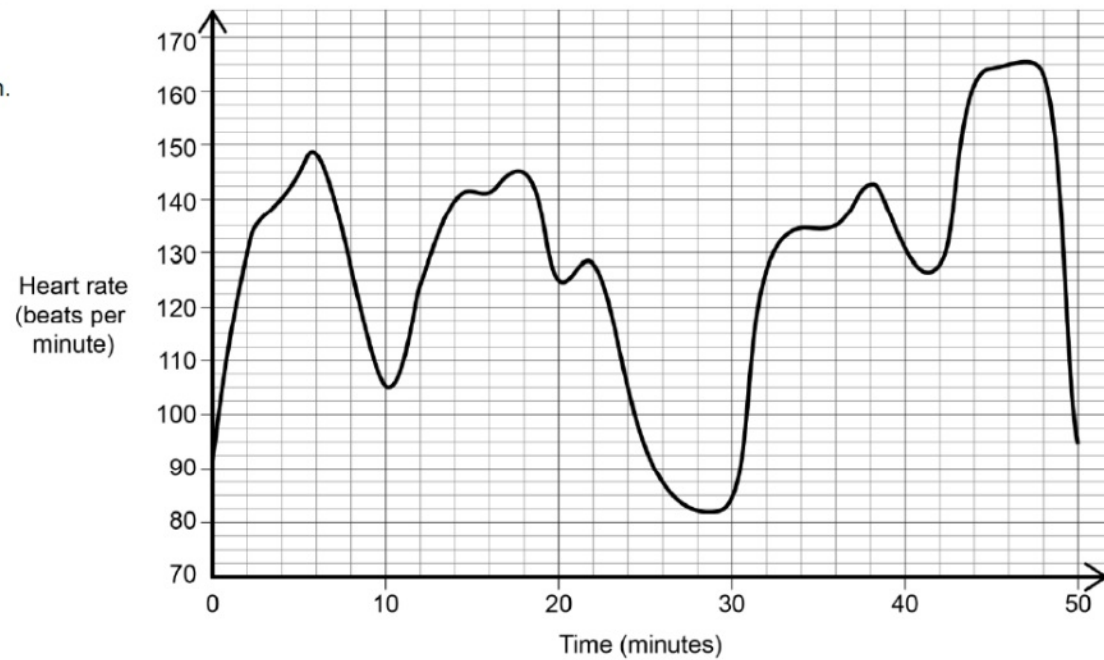
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(a) Use the formula to calculate Zoe's maximum heart rate.

$$220 - 45 = 175 \text{ bpm}$$

Zoe is 45 years old. ✓  
She wears a heart rate monitor while she is exercising.  
The graph shows her heart rate during her exercise session.



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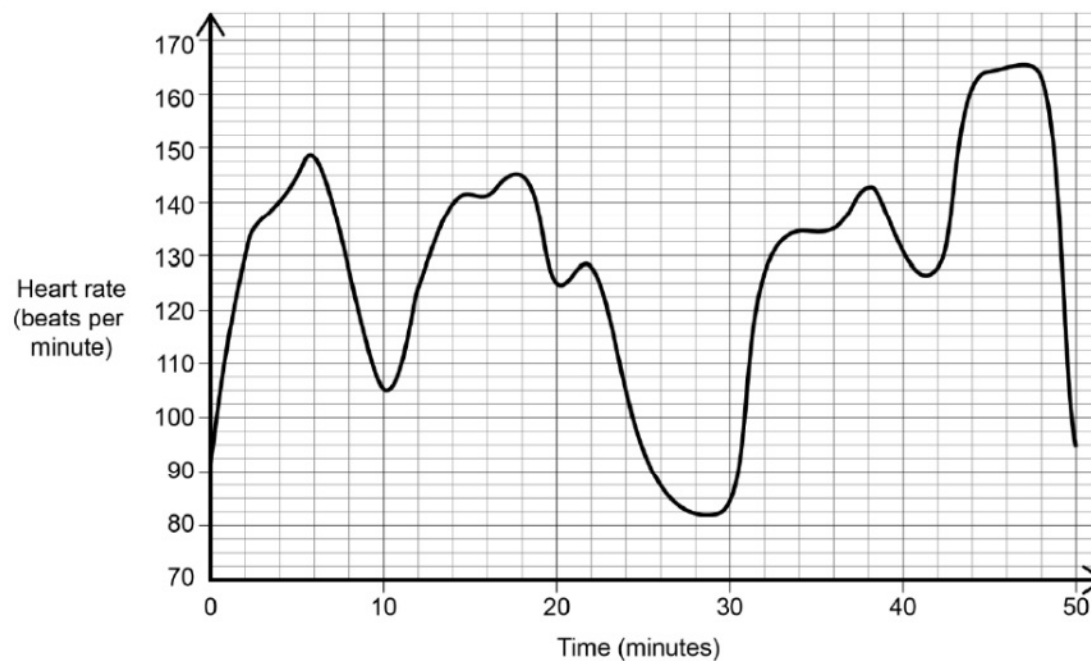
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(b) Estimate the number of minutes Zoe spent working at **cardio** intensity during this session.

Show clearly how you make your estimate.

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(b) Estimate the number of minutes Zoe spent working at cardio intensity during this session.

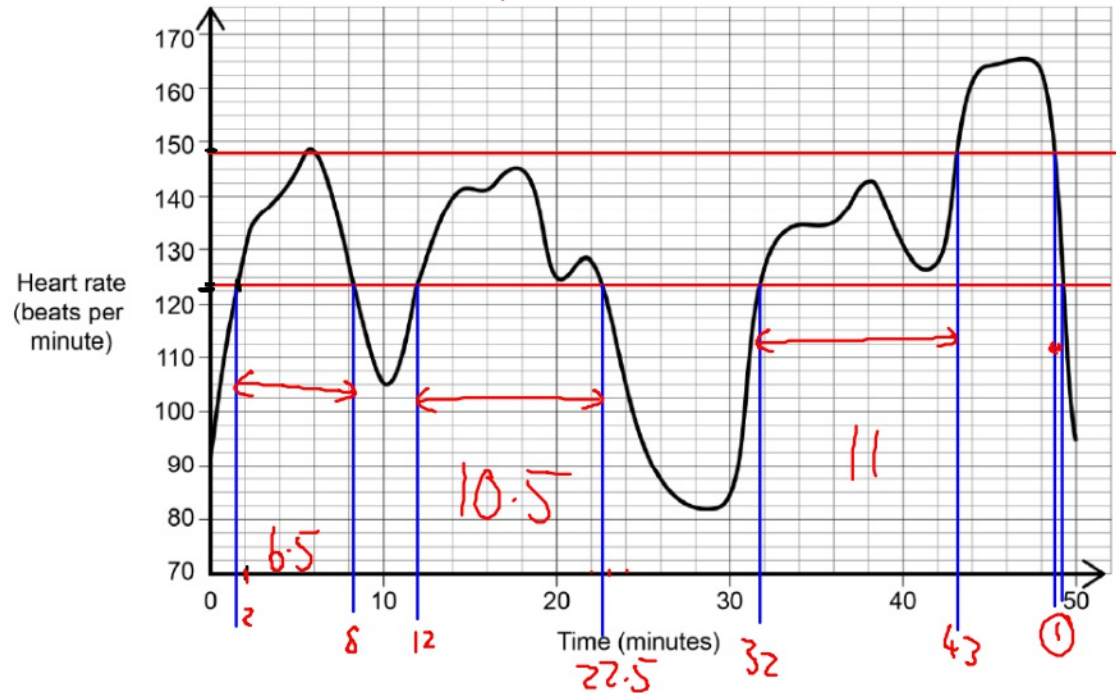
Show clearly how you make your estimate.

29 min → 28 → 31 minutes

Zoe is 45 years old.  
She wears a heart rate monitor while she is exercising.  
The graph shows her heart rate during her exercise session.

$$85\% \text{ of } 175 = 148.75 \text{ bpm}$$

$$70\% \text{ of } 175 = 122.5 \text{ bpm}$$



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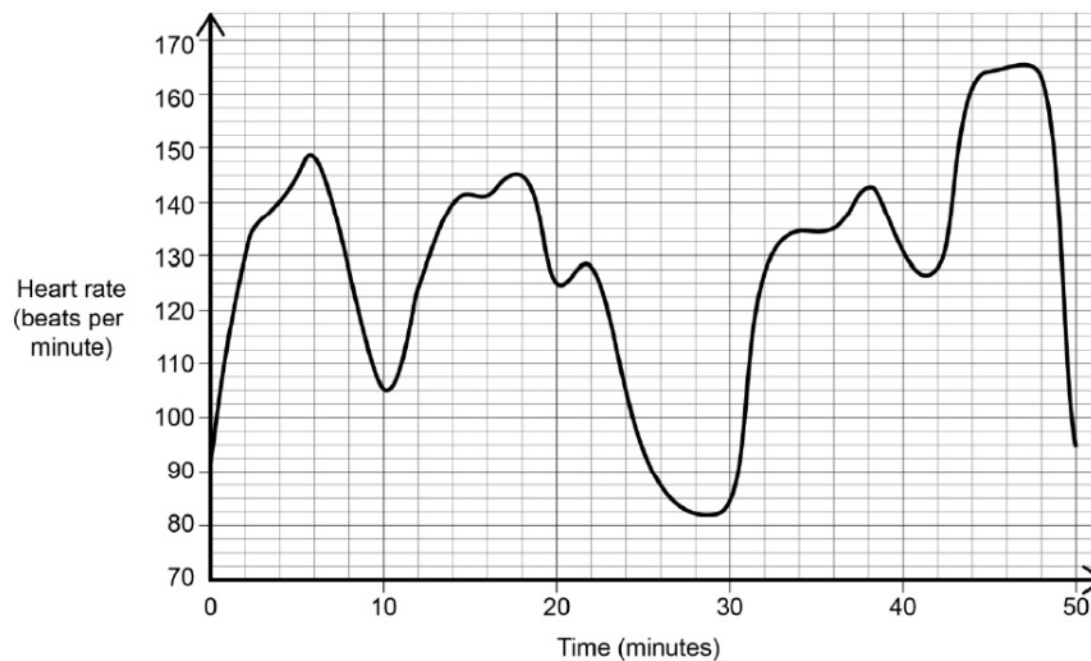
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(c) Zoe says

My heart rate was in the **exercise zone** for 50 minutes in my session.

Explain why Zoe is not correct.

Zoe is 45 years old.  
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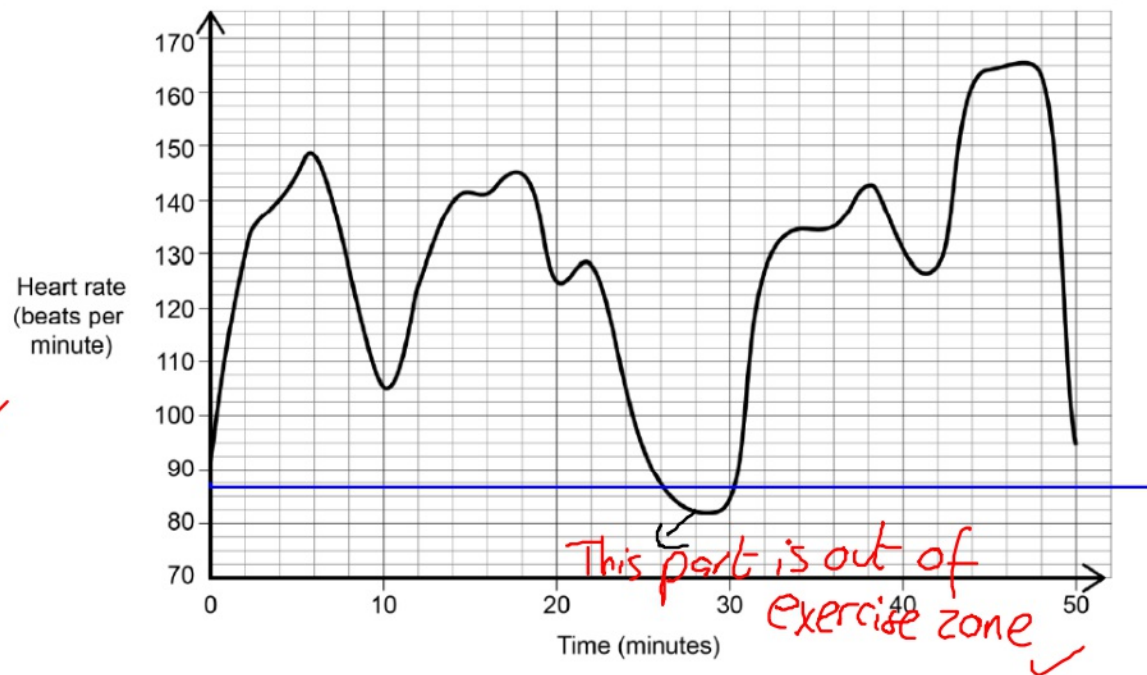
My heart rate was in the **exercise zone** for 50 minutes in my session.

Explain why Zoe is not correct.

Total = 50

Zoe is 45 years old.  
She wears a heart rate monitor while she is exercising.  
The graph shows her heart rate during her exercise session.

50% of 175  
87.5 bpm ✓



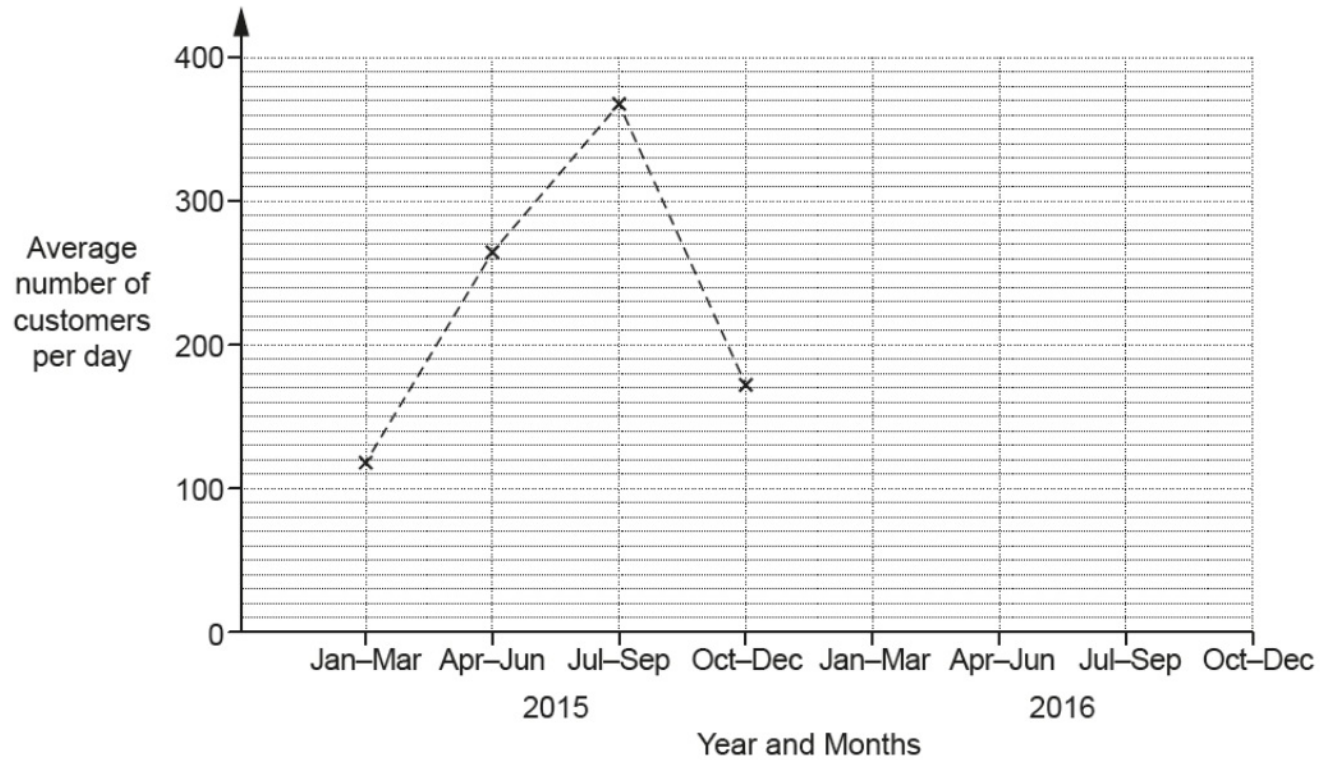


23 The table shows the average number of customers per day entering a shop.

Video created by W Neill

	2015				2016			
Months	Jan-Mar	Apr-Jun	July-Sep	Oct-Dec	Jan-Mar	Apr-Jun	July-Sep	Oct-Dec
Average number of customers per day	119	264	368	172	130	304	381	192

(a) Complete the time series graph below.

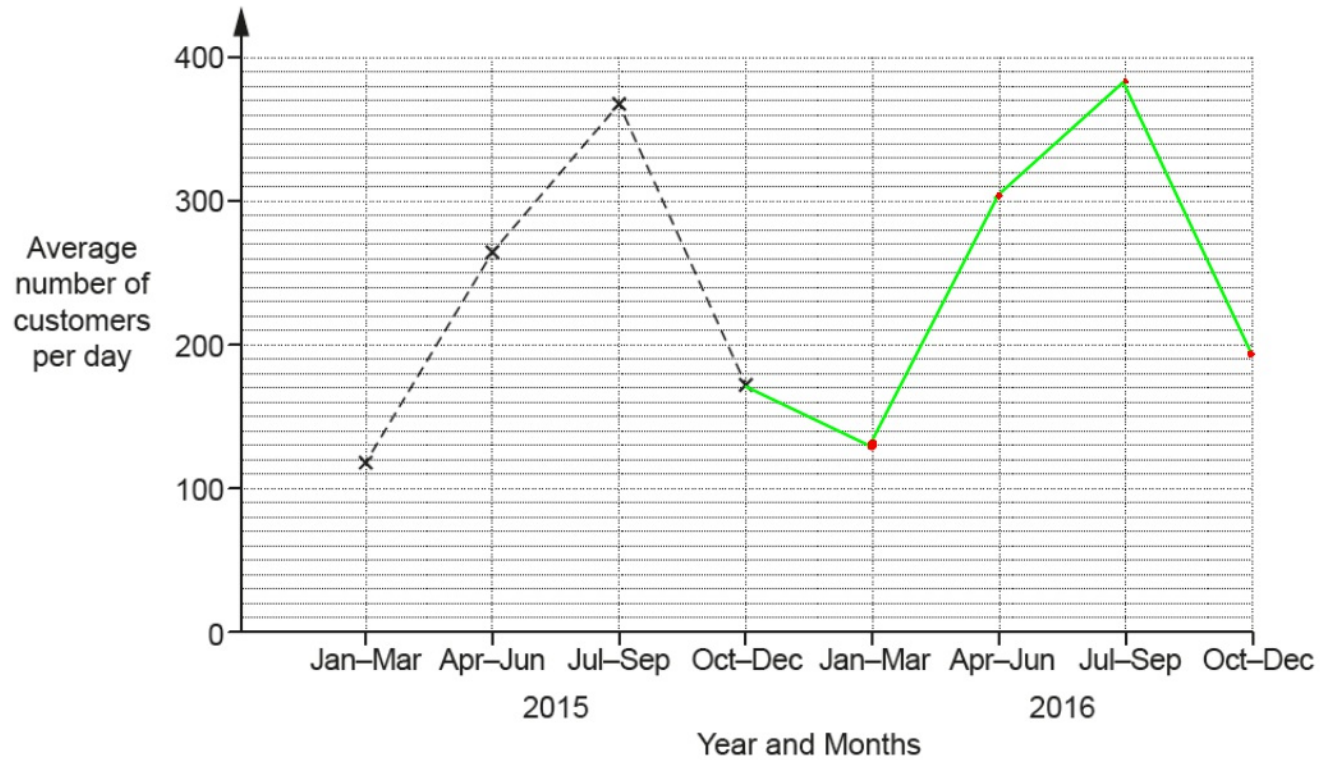


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(a) Complete the time series graph below.



- (b)** Make two different comments comparing the number of customers entering the shop in 2015 and 2016.

Comment 1 .....

.....

.....

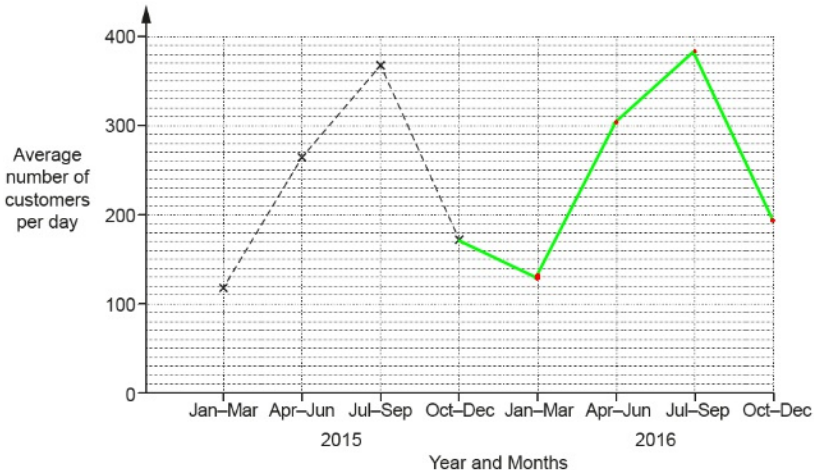
Comment 2 .....

.....

.....

**[2]**

(a) Complete the time series graph below.



(b) Make two different comments comparing the number of customers entering the shop in 2015 and 2016.

Comment 1 Jan-March 2016 did better than 2015 with 130 compared to 119 in the shop.

Comment 2 Jul-Sept did the best in both years

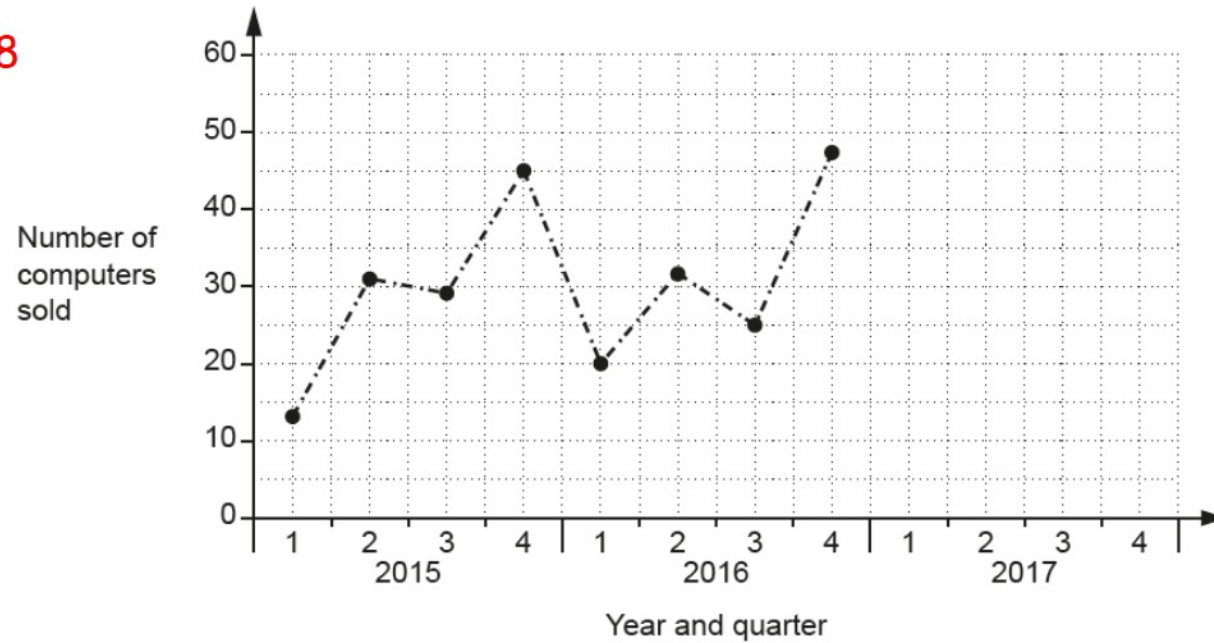
20 The table shows the number of computers sold in Tom's shop each quarter from 2015 to 2017.

Video created by Will Neill

	2015				2016				2017			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4
Number of computers sold	13	31	29	45	20	32	25	47	27	40	30	58

(a) Complete this graph using the information for 2017.

P8



[2]

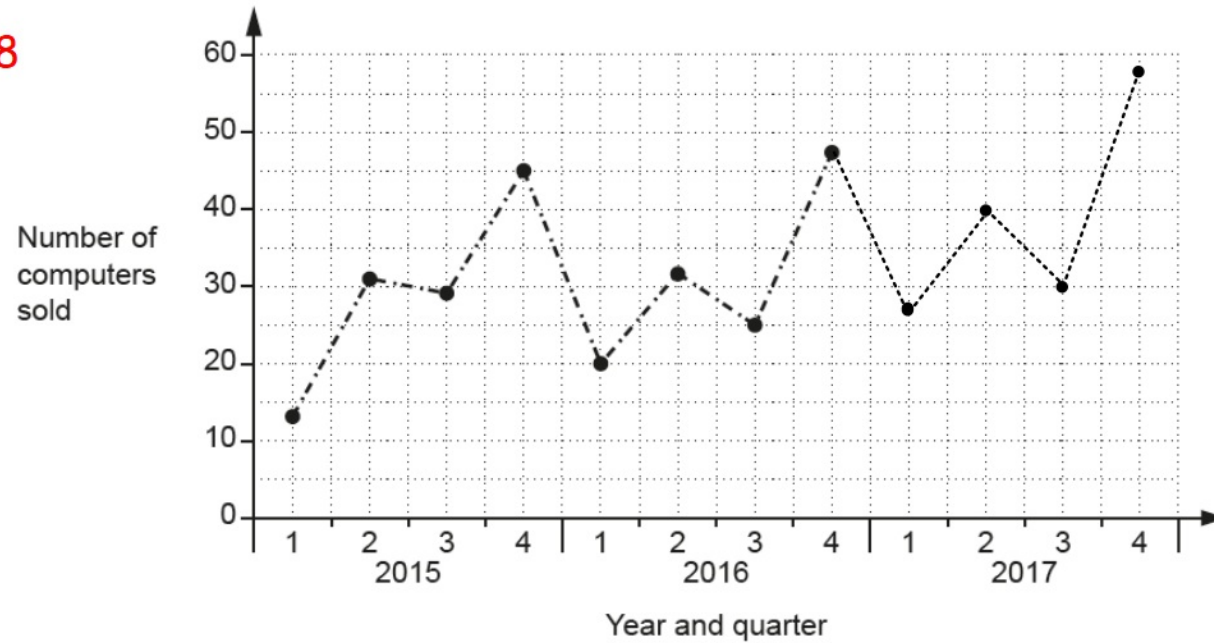
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(a) Complete this graph using the information for 2017.

P8



[2]

**(c)** Make two comments about Tom's sales over the period 2015 to 2017.

**P8** Comment 1 .....

.....

Comment 2 .....

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

**(d)** Tom predicts that he will sell more than 60 computers in the 4<sup>th</sup> quarter of 2018.

**P8** What assumption has he made?

.....

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

(c) Make two comments about Tom's sales over the period 2015 to 2017.

P8 Comment 1 ..... In each year, Q4 is his best quarter  
.....

Comment 2 ..... Overall, his sales are increasing as each  
..... quarter improves each yr. [2]

(d) Tom predicts that he will sell more than 60 computers in the 4<sup>th</sup> quarter of 2018.

P8 What assumption has he made?

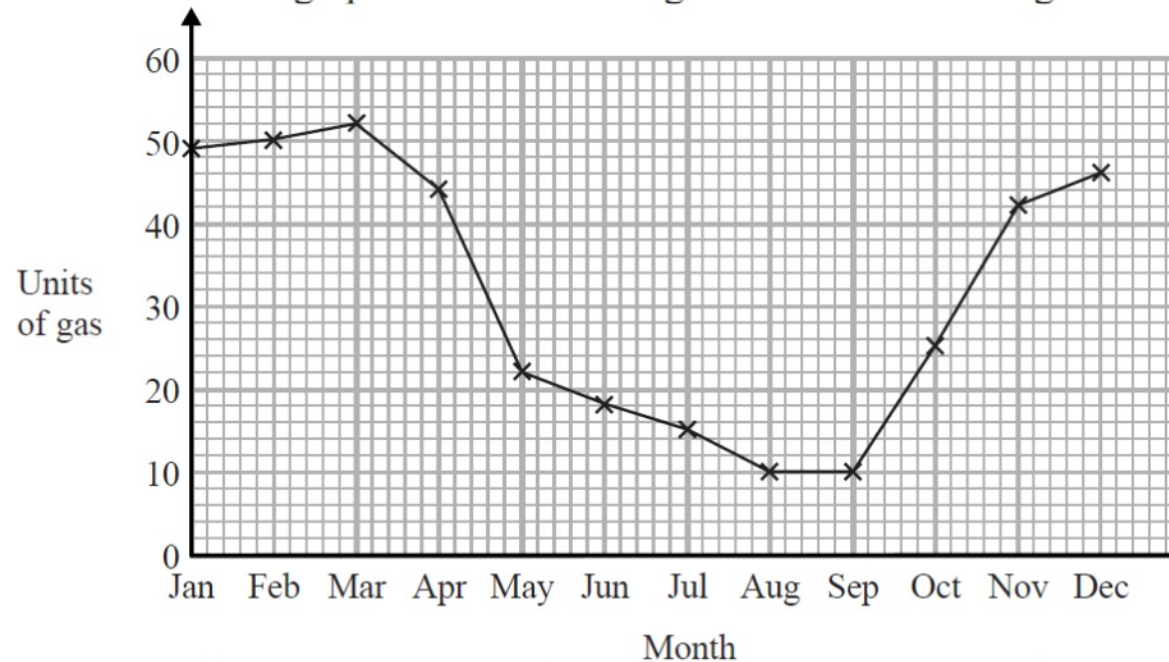
..... He assumes his sales in Q4 will keep improving.  
..... [1]



Edexcel

7 The graph gives information about the number of units of gas Shazia used last year to heat her house.

P8 For each month the graph shows the average number of units of gas she used each day.

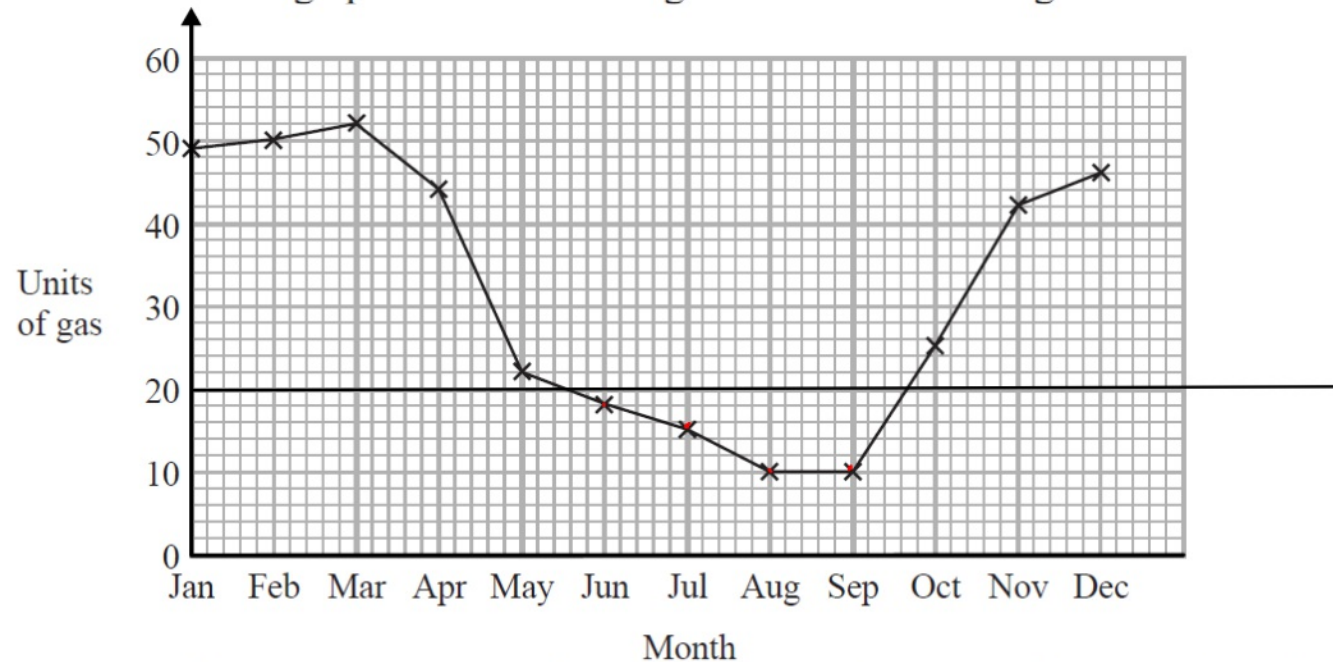


In some months the average number of units of gas Shazia used each day was less than 20

(a) In how many months?

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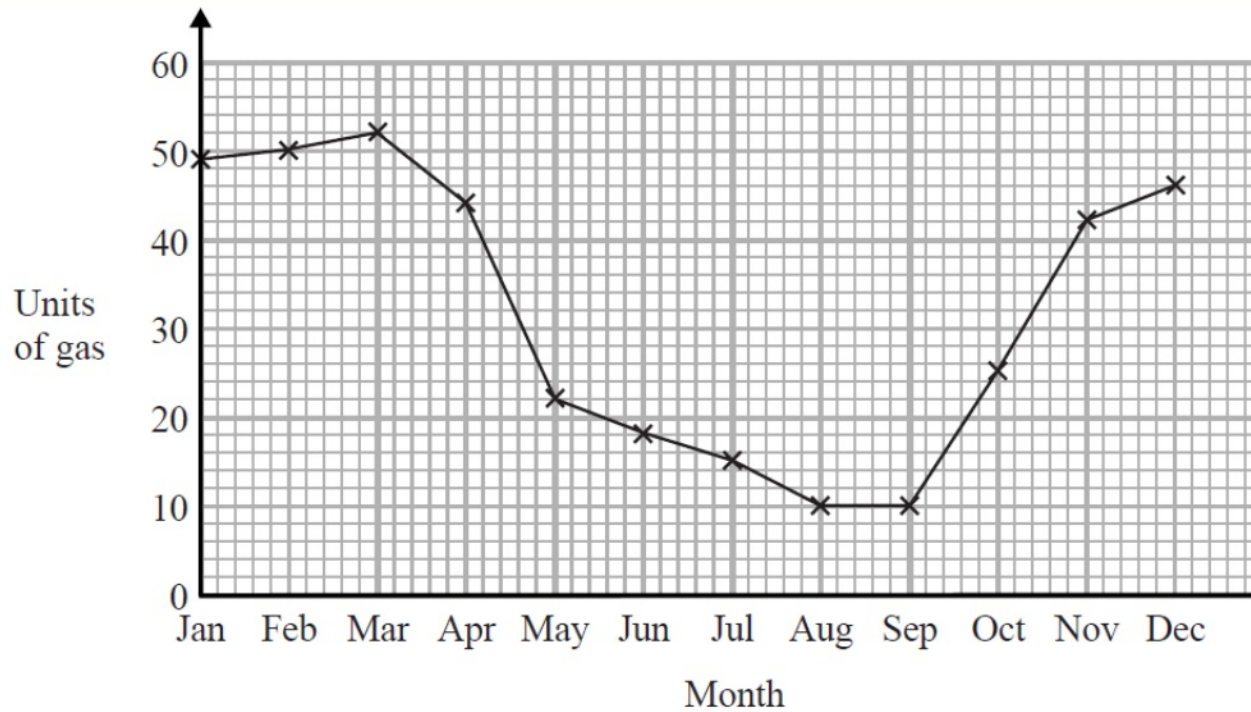


In some months the average number of units of gas Shazia used each day was less than 20

(a) In how many months?

4

(1)

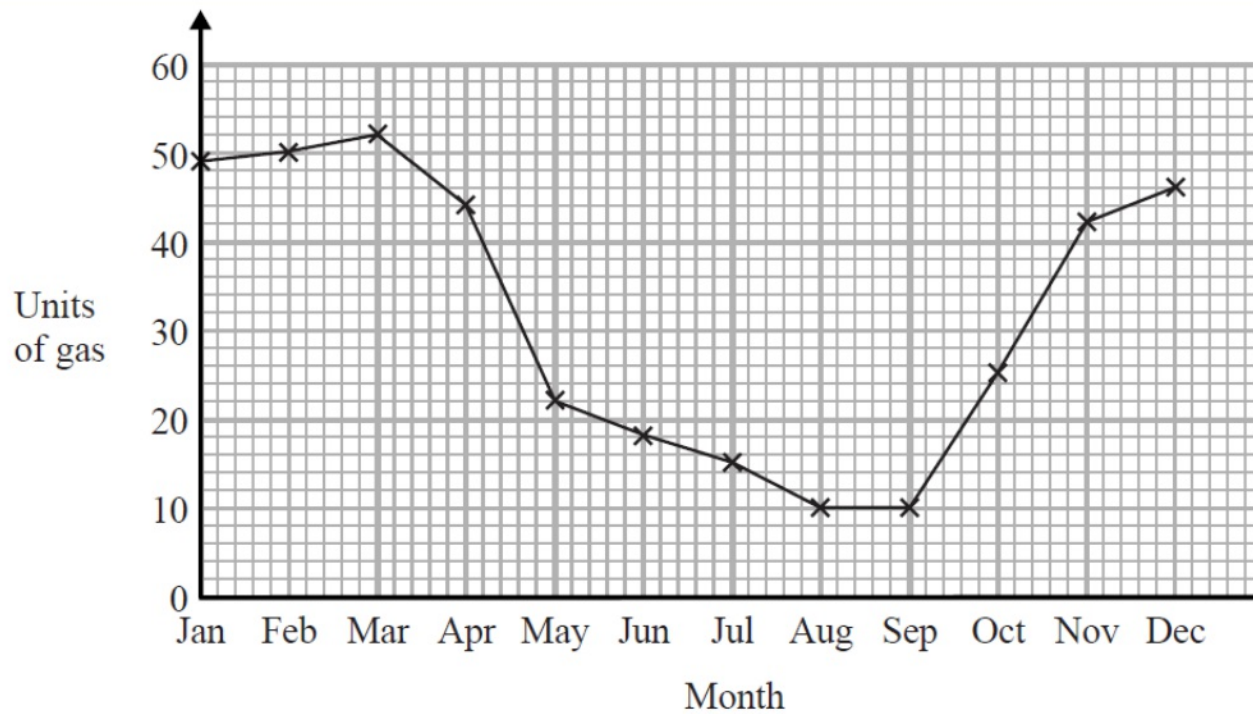


From September to December the average number of units of gas Shazia used each day increased month by month.

(b) Give a reason why this might have happened.

.....

.....



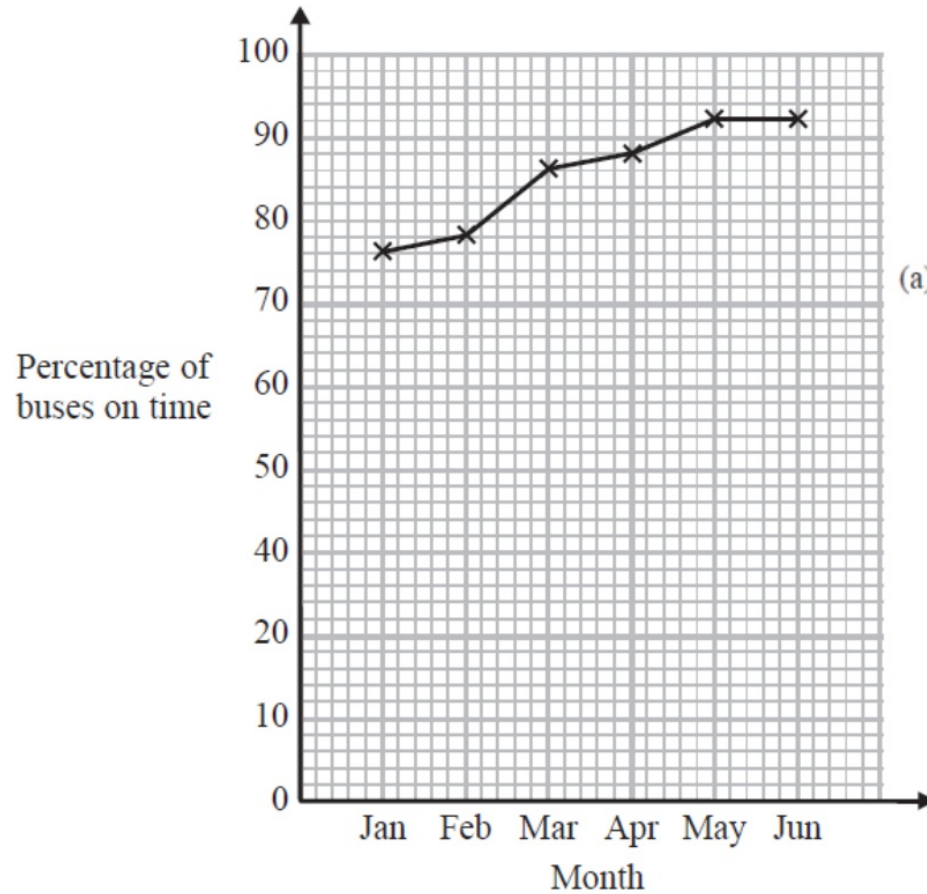
From September to December the average number of units of gas Shazia used each day increased month by month.

(b) Give a reason why this might have happened.

As it gets colder she will use her heating more often.

Created by W Neill

- 8 Chrissy drew this graph to show the percentage of buses that got to a bus stop on time for six months.

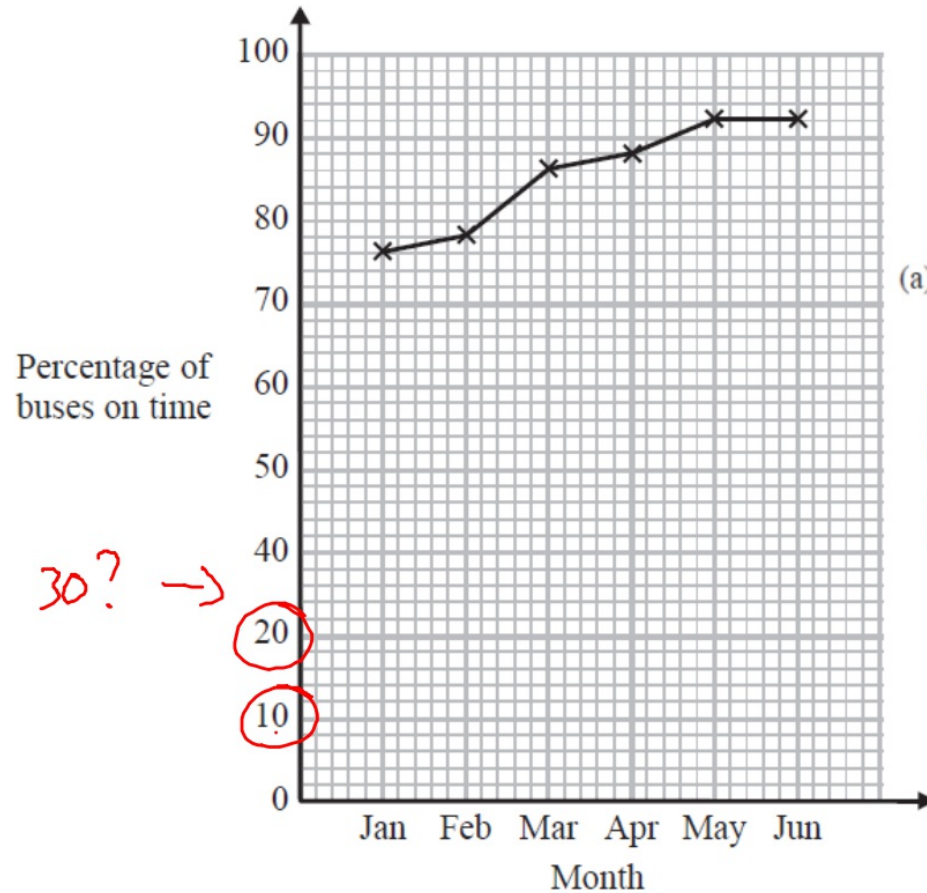


(a) Write down **one** thing that is wrong with the graph.

(b) Describe the trend in the percentage of buses that got to the bus stop on time.

Created by W Neill

- 8 Chrissy drew this graph to show the percentage of buses that got to a bus stop on time for six months.



(a) Write down **one** thing that is wrong with the graph.

Vertical axis is not going up in equal steps

30? →

20

10

(b) Describe the trend in the percentage of buses that got to the bus stop on time.

Positive trend, % of buses increases over time.

AQA



14

Chris sells lawnmowers.

Video created by W Neill

The table shows the number he sold each quarter for three years.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2016	17	64	50	5
2015	9	72	61	1
2014	19	58	53	2

14 (a) In which year did he sell the most lawnmowers? [2 marks]

You **must** show your working.

P8

Answer \_\_\_\_\_

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14 (b) He uses the table to decide the number of lawnmowers to stock each quarter.

**P8** At the **start** of which quarter should Chris stock the most lawnmowers?

Circle your answer.

[1 mark]

Quarter 1

Quarter 2

Quarter 3

Quarter 4

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$$= 136$$

$$= 143$$

$$= 132$$

14 (a) In which year did he sell the most lawnmowers? [2 marks]

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P8

Answer 2015

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*Most*

14 (b) He uses the table to decide the number of lawnmowers to stock each quarter.

**P8** At the **start** of which quarter should Chris stock the most lawnmowers?

Circle your answer.

[1 mark]

Quarter 1

Quarter 2

Quarter 3

Quarter 4

**24** A music festival has taken place each year from 2011

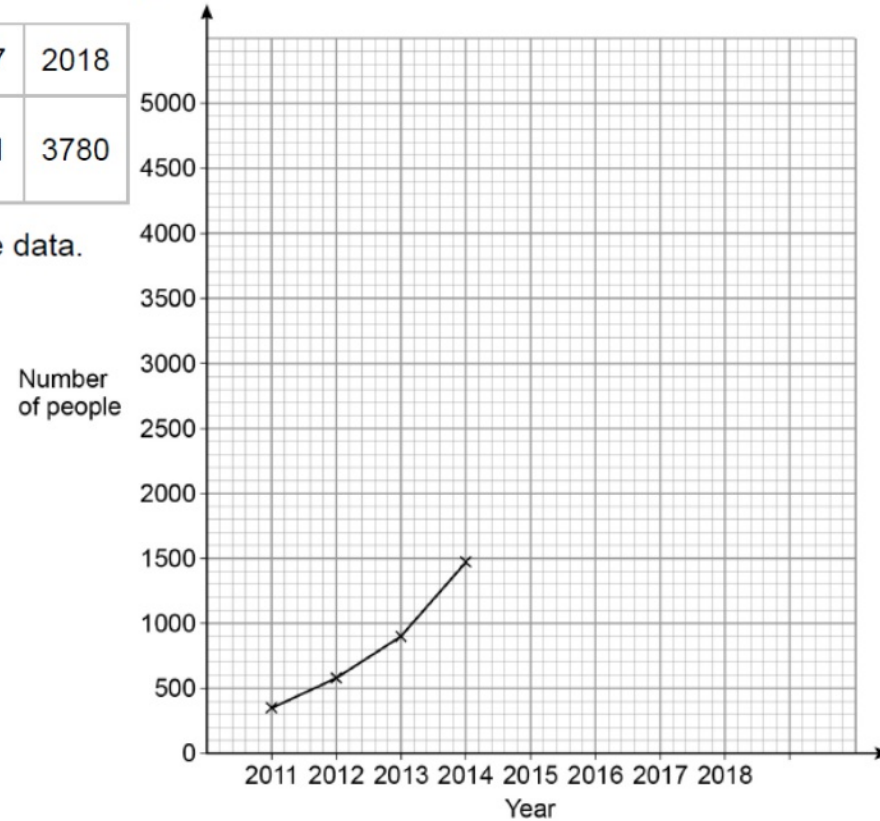
**P8** The table shows the number of people who attended each year.

Year	2011	2012	2013	2014	2015	2016	2017	2018
Number of people	350	583	906	1471	2023	2612	3251	3780

The festival organisers draw a time series graph to represent the data.

The first four years have been plotted.

**24 (a)** Complete the graph.



**24 (b)** Use the graph to estimate the number of people who will attend the festival in 2019

**[2 marks]**

Answer \_\_\_\_\_

24 A music festival has taken place each year from 2011

Video created by W Neill

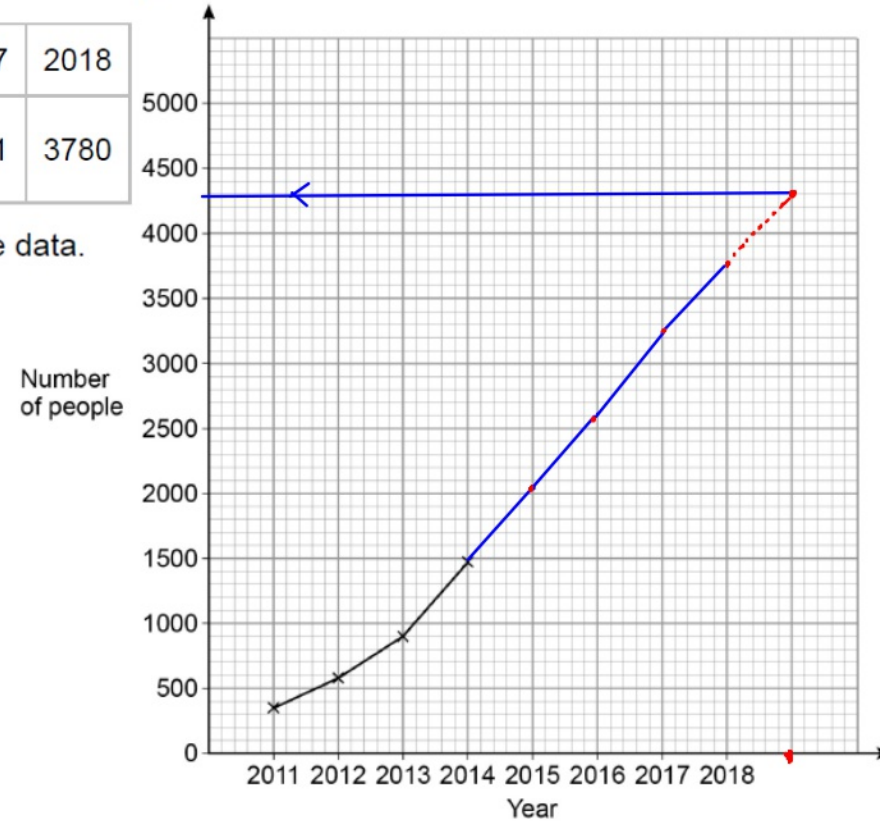
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Number of people	350	583	906	1471	2023	2612	3251	3780

The festival organisers draw a time series graph to represent the data.

The first four years have been plotted.

(a) Complete the graph.



(b) Use the graph to estimate the number of people who will attend the festival in 2019

Answer 4300

[2 marks]