AQA - Tabulation and Representation of data – GCSE Statistics – 2020

1. June/2020/Paper_1F/No.8

The strength of volcanic eruptions is measured using the Volcanic Explosivity Index (VEI) using a scale of 0 – 8

From 1900 – 2019 there have been **79** eruptions of 4 or above on the VEI.

The pictogram represents some of this information.

1900 – 1919	
1920 – 1939	
1940 – 1959	
1960 – 1979	
1980 – 1999	
2000 – 2019	

Key:  represents _____ eruptions

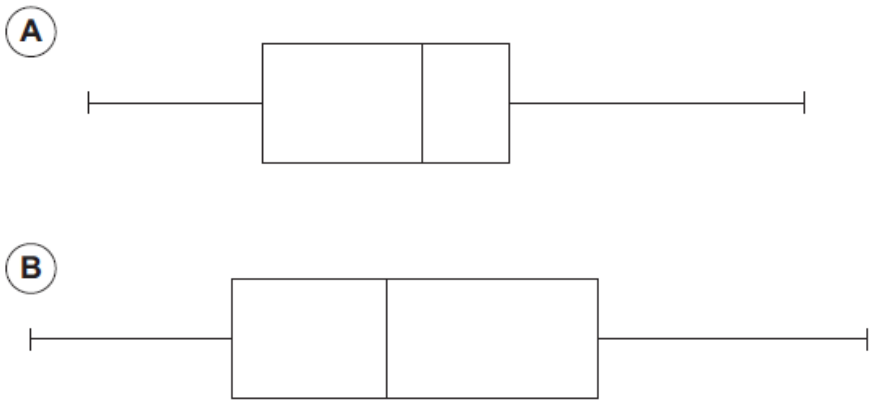
Between 1920 and 1939, there were 12 eruptions of strength 4 or above.

Complete the pictogram, including the key.

[4 marks]

2. June/2020/Paper_1F/No.11

The diagram shows two box plots, **A** and **B**, which are plotted on the same scale.



(a) Circle whether each of these statements is true, false or you cannot tell.

[3 marks]

The minimum value of **A** is smaller than the minimum value of **B**.

True False Cannot tell

The median of **A** is smaller than the median of **B**.

True False Cannot tell

The interquartile range of **A** is smaller than the interquartile range of **B**.

True False Cannot tell

The mean of **A** is smaller than the mean of **B**.

True False Cannot tell

(b) A data value from box plot **A** is chosen at random.

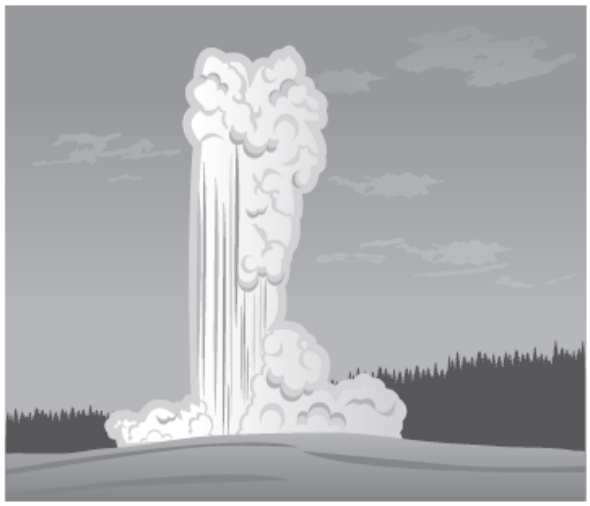
Circle the probability that this value is between the minimum and maximum of the data represented by box plot **B**.

[1 mark]

0 $\frac{1}{2}$ 0.9 1

3. June/2020/Paper_1H/No.10

A geyser is a spring which erupts from time to time and shoots a column of hot water into the air.

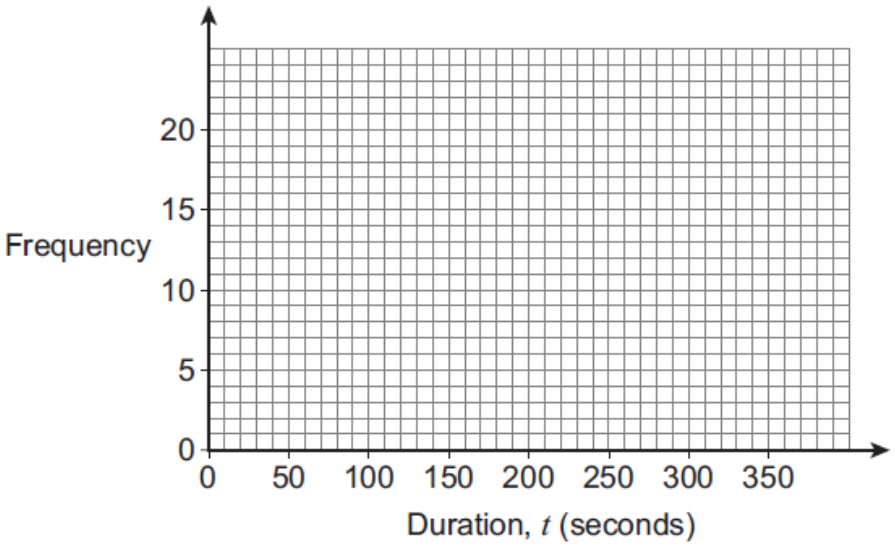


The table shows the duration of 80 eruptions of a geyser.

Duration, t (seconds)	Frequency
$40 < t \leqslant 80$	1
$80 < t \leqslant 120$	19
$120 < t \leqslant 160$	17
$160 < t \leqslant 200$	1
$200 < t \leqslant 240$	17
$240 < t \leqslant 280$	20
$280 < t \leqslant 320$	5
TOTAL	**80**

(a) Draw a frequency polygon to show this information.

[3 marks]



(b) Calculate an estimate of the mean duration of an eruption.

Use $\sum ft = 14\ 960$

[1 mark]

Answer _____ seconds

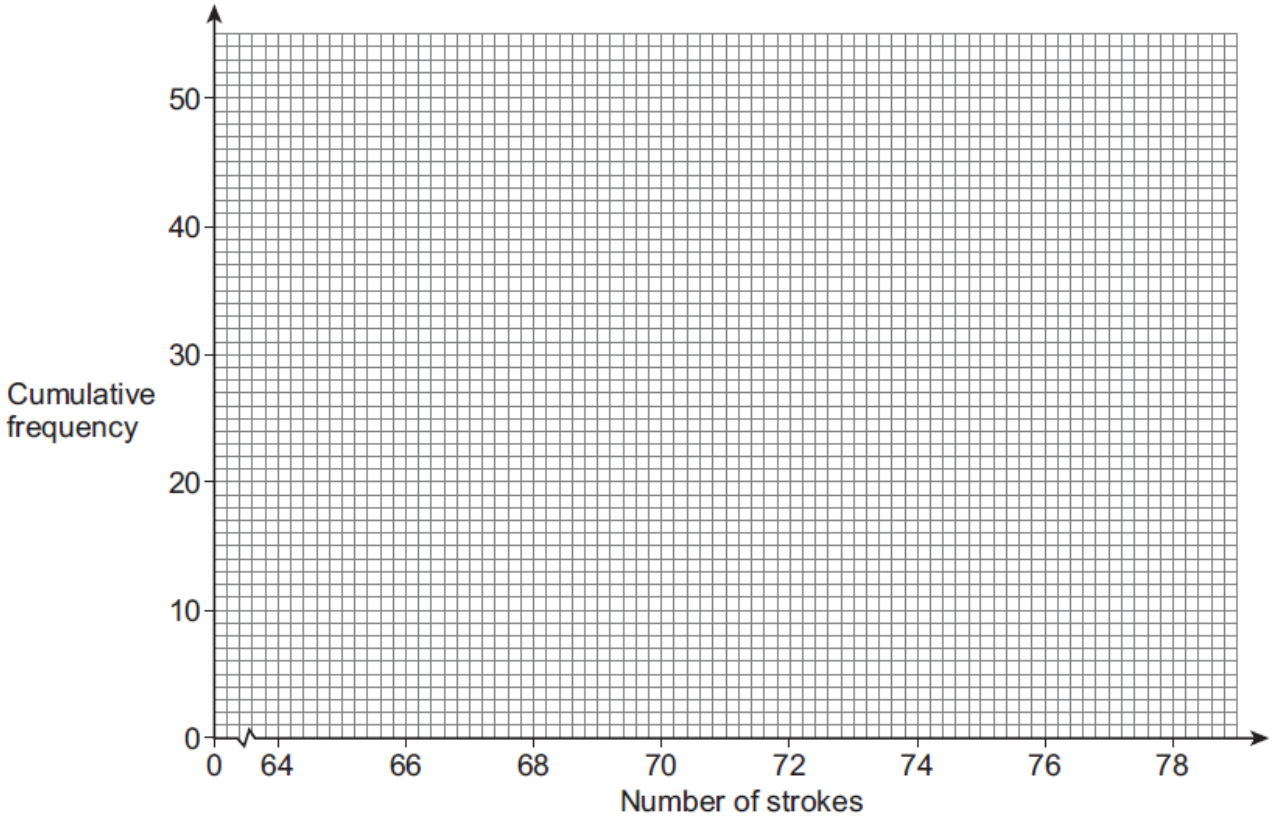
(c) Give a reason why the mean is **not** a typical value for this set of data.

[1 mark]

4. June/2020/Paper_1H/No.16(f-i)

(f) Draw a cumulative frequency step polygon to show the results for **Round 2**

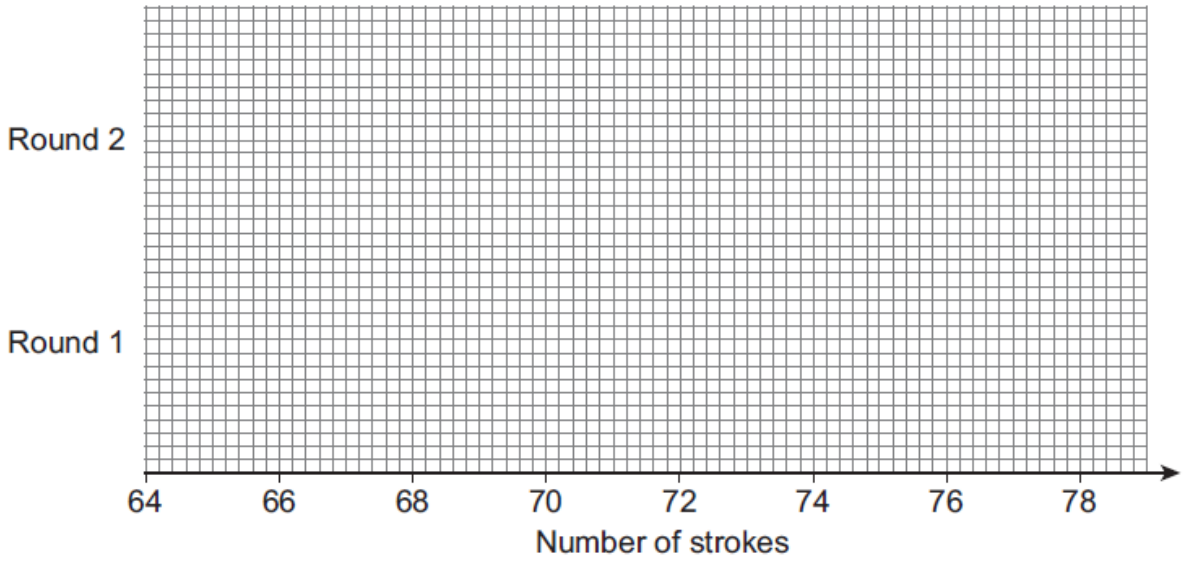
[3 marks]



(g) Draw separate box plots, on the grid below, for the number of strokes in **Round 1** and **Round 2**

Mark clearly the outlier for **Round 1**

[4 marks]



(h) Compare statistically the number of strokes taken for **Round 1** and **Round 2**

[2 marks]

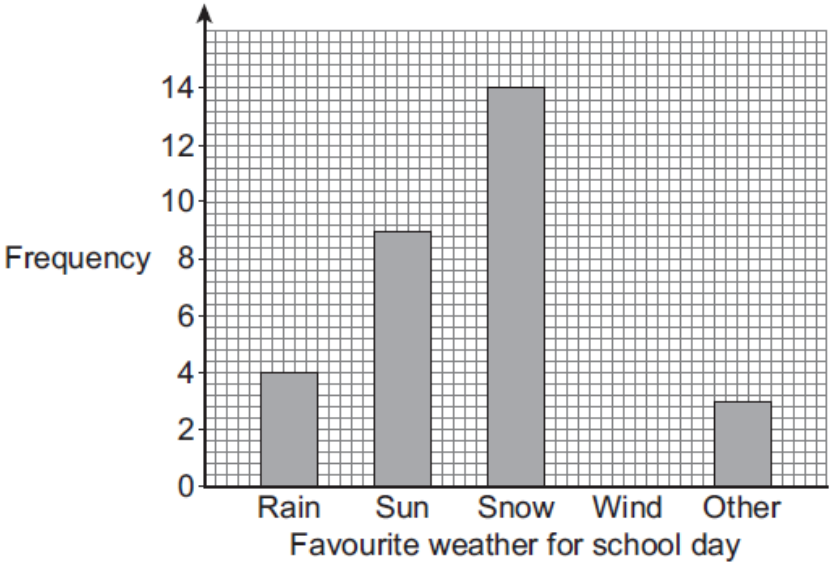
(i) Write down a factor that could explain the difference between the number of strokes in the two rounds.

[1 mark]

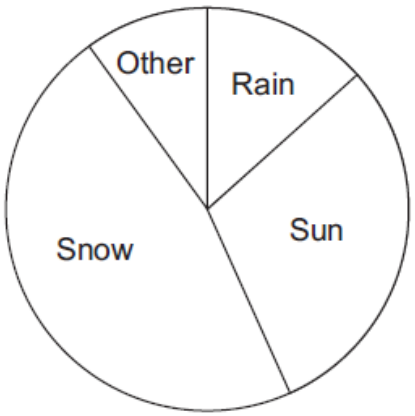
5. June/2020/Paper_2F/No.11

Thirty students were asked about their favourite type of weather for a school day.

The bar chart and the pie chart show the results.



Favourite weather for school day



(a) Give **two** reasons why the bar chart gives more information.

[2 marks]

Reason 1 _____

_____

_____

Reason 2 _____

_____

_____

(b) The pie chart angle for "other" is 36°

Show **how** this value is calculated.

[2 marks]

(c) The same 30 students were later asked about their favourite weather for a **non-school day**.

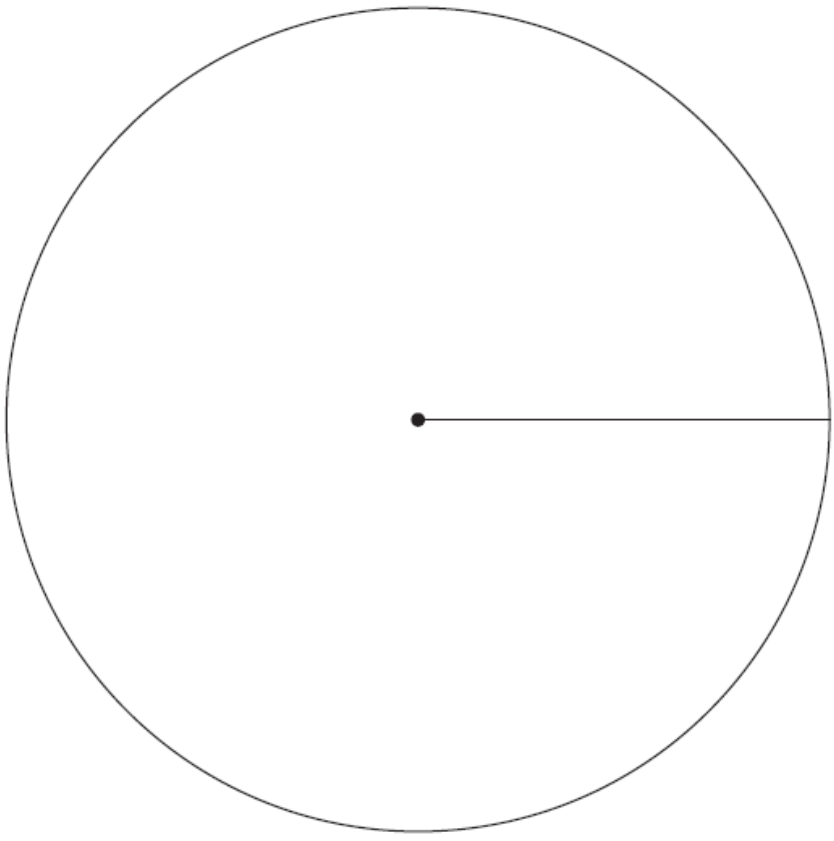
Compared to their choices for a school day

- no one wanted rain
- double the number wanted sun
- five fewer wanted snow
- one person wanted it windy.

Draw a labelled pie chart for the favourite weather on a non-school day.

Remember to include any who now wanted 'other'.

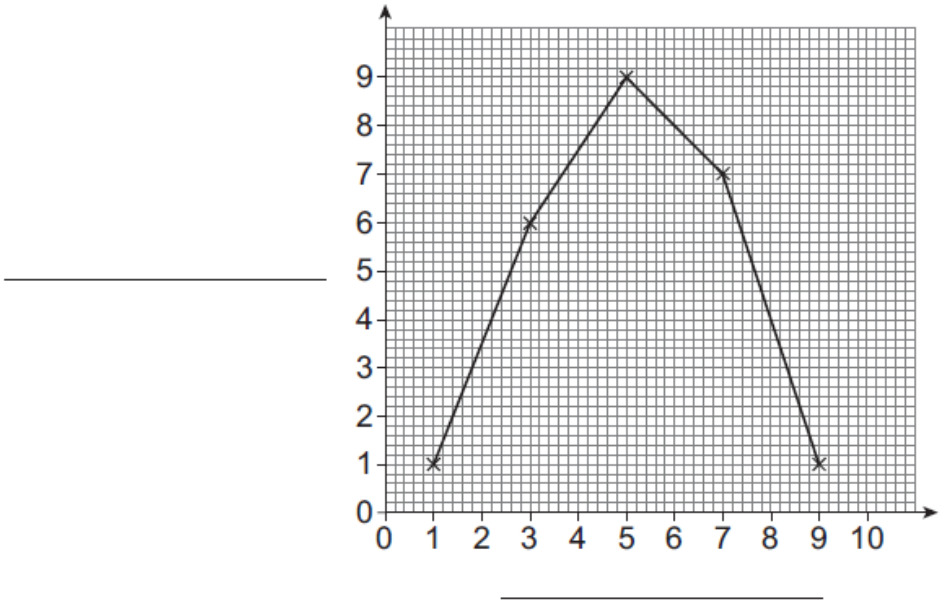
[5 marks]



6. June/2020/Paper_2F/No.12(b-c)

Ben measures the length of time (in seconds) it takes his Mum to read the first sentence on every page in the **same two books as in part (a).**

(b) The results for the first book are shown in this frequency polygon.



(b) (i) Is the diagram appropriate for the **type** of data it is representing?

Tick (✓) a box.

Yes ☐ No ☐

Give a reason for your answer.

[1 mark]

(b) (ii) Write the two missing labels on the axes.

[2 marks]

(b) (iii) Write down the modal group.

[1 mark]

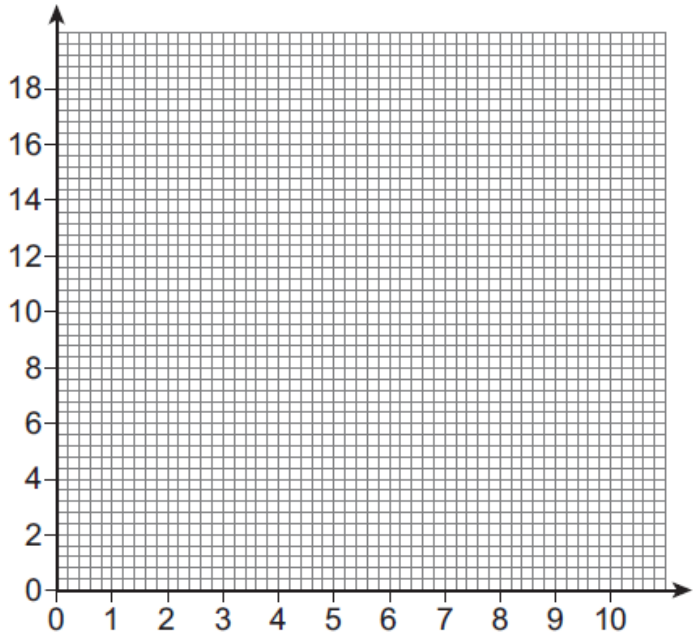
Answer _____

(c) The table shows the data Ben collected for the second book.

Length of time, t (seconds)	Frequency
$0 < t \leqslant 2$	6
$2 < t \leqslant 4$	18
$4 < t \leqslant 6$	16
$6 < t \leqslant 8$	8
$8 < t \leqslant 10$	0

(c) (i) Complete the frequency polygon for the second book's data on the grid below.

[2 marks]



(c) (ii) Compare the lengths of time taken for the two books.

[2 marks]

7. June/2020/Paper_2H/No.12(b)

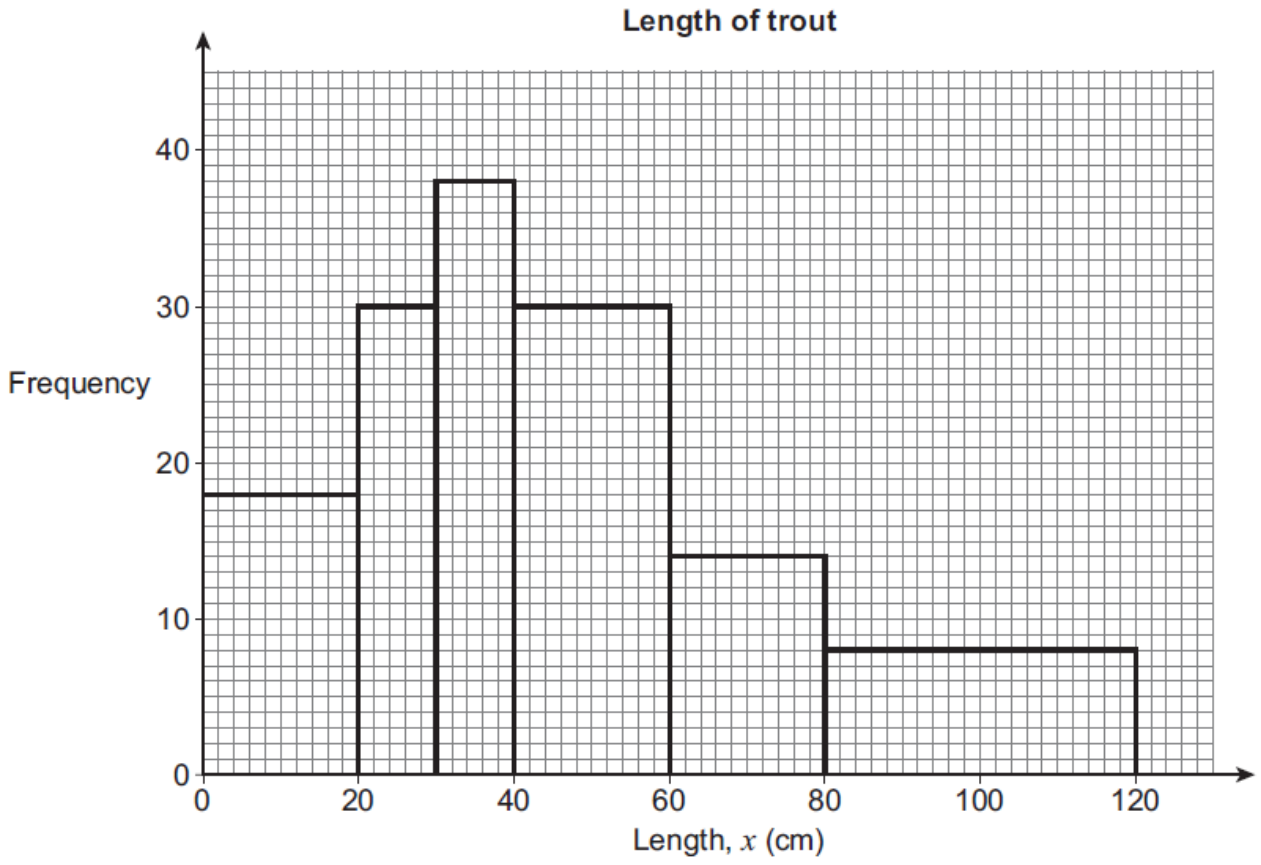
(b) Gemma measured the length of the 138 trout she captured in her first sample.

The table gives information about the length of these trout.

Length, x (cm)	Frequency
$0 < x \leqslant 20$	18
$20 < x \leqslant 30$	30
$30 < x \leqslant 40$	38
$40 < x \leqslant 60$	30
$60 < x \leqslant 80$	14
$80 < x \leqslant 120$	8

(b) (i) Gemma wants to show her information as a histogram.

She draws this diagram.

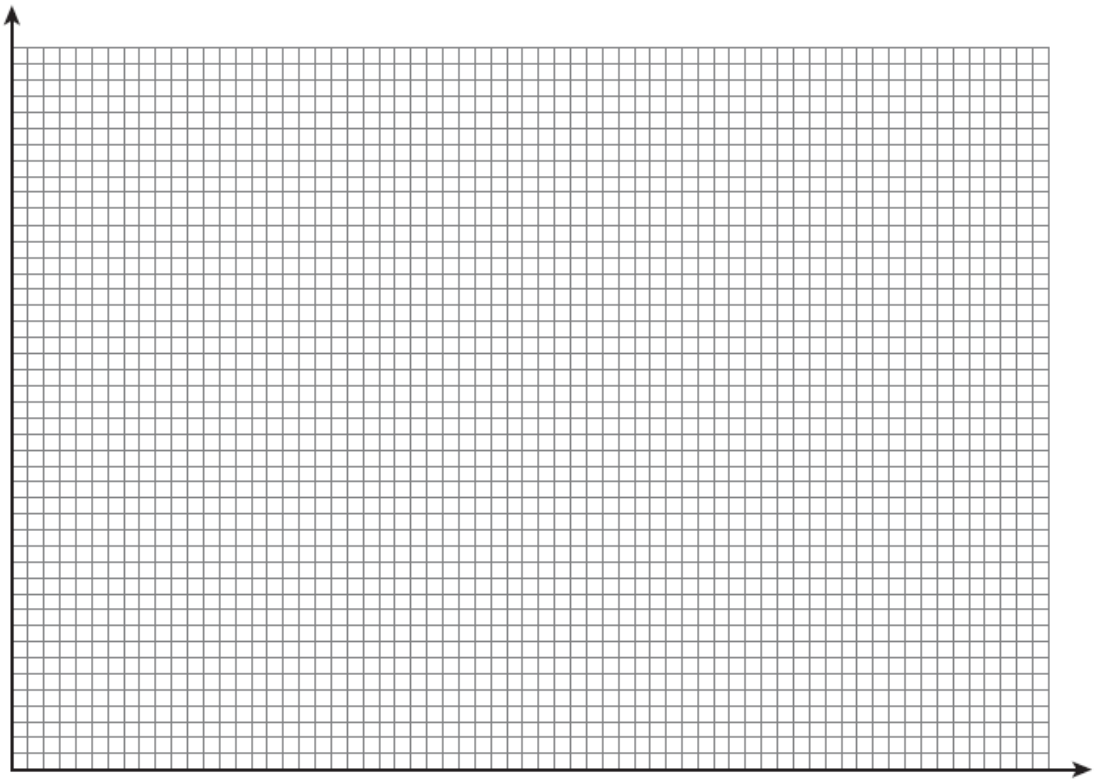


What mistake has Gemma made in drawing her histogram?

[1 mark]

(b) (ii) Draw a correct histogram to show Gemma's information.

[4 marks]



(b) (iii) What type of skewness is shown in the histogram you drew in **part (b)(ii)**?

[1 mark]

Answer _____