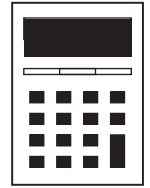


# GCSE MATHEMATICS

# Frequency Polygons



**AQA**  These questions have been taken or modified from previous AQA GCSE Mathematics Papers.

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## Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided.
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.14 unless another value is given in the question.

## Information

- The marks for questions are shown in brackets.
- The quality of your written communication is specifically assessed in questions that are indicated with an asterisk (\*).

## Advice

- Read each question carefully before you start to answer it.
  - In all calculations, show clearly how you work out your answer.
  - Use the number of marks for the question as a guide to the amount of time you need to spend.
  - Look at previous parts of the question, e.g. a), b), c) i) as there may be information there you need to answer later parts.
  - Check your answer is realistic and appropriate.
  - For calculator decimal numbers always write your full calculator display in the working out area and then, if you need to, round the answer on the answer line.
- 

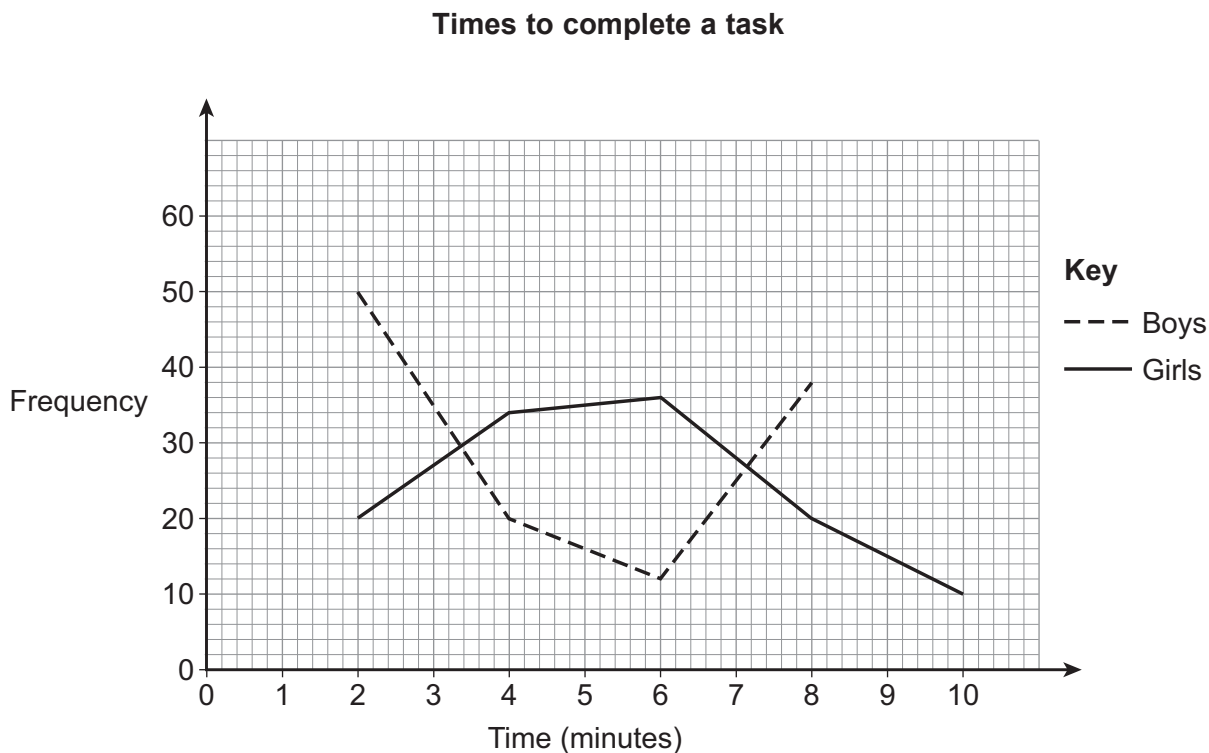
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1 The diagram shows two frequency polygons.

It shows information about the times to complete a task for 120 boys and 120 girls.



Make **three** statements comparing the times for boys with the times for girls.

**[3 marks]**

1 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 A chess club has both male and female members.

2 (a) The table shows the age distribution of the male club members.

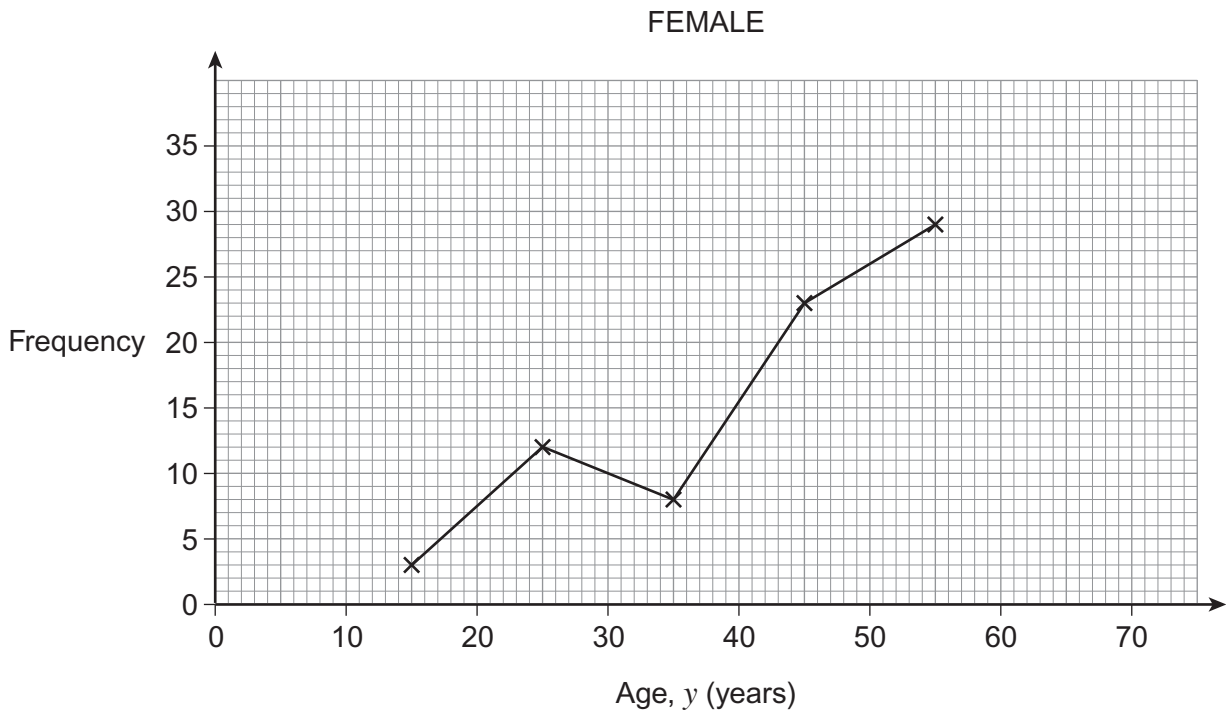
Age, $y$ (years)	Frequency
$10 \leq y < 20$	5
$20 \leq y < 30$	9
$30 \leq y < 40$	16
$40 \leq y < 50$	34
$50 \leq y < 60$	28
$60 \leq y < 70$	19

Draw a frequency polygon for these data.

[2 marks]



2 (b) The frequency polygon below shows the age distribution of the female club members.



Write down **two** comparisons between the age distributions of the male and female club members.

**[2 marks]**

Comparison 1 .....

.....

.....

.....

Comparison 2 .....

.....

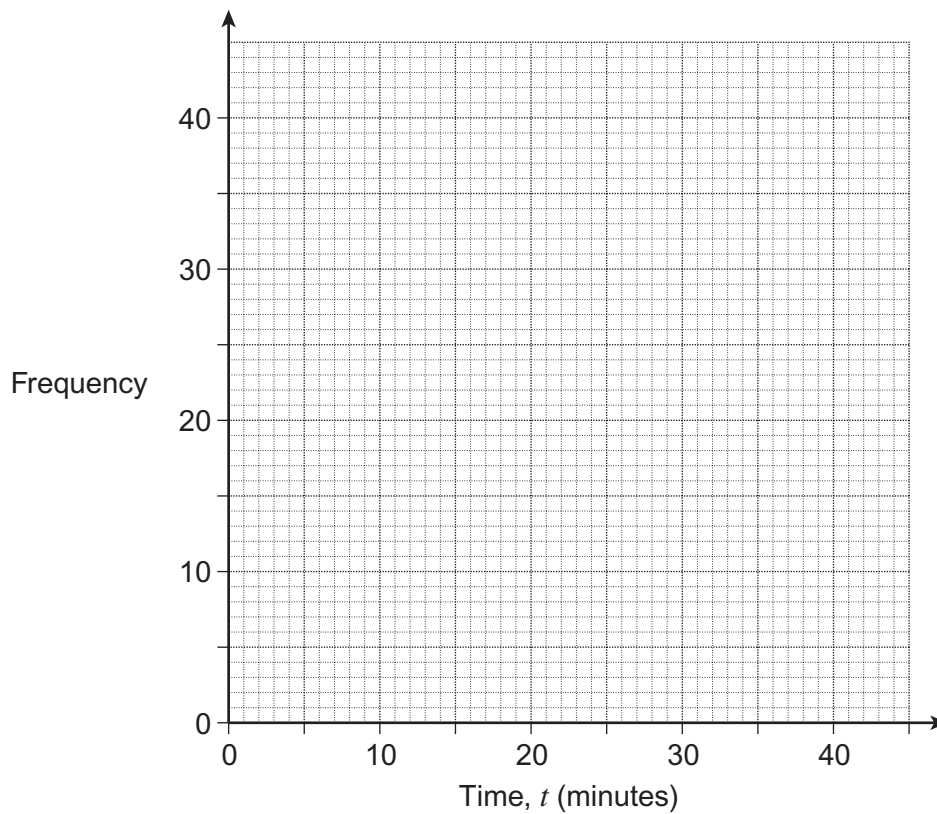
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3 The times taken by 100 students to travel to school are shown.

Time, $t$ (minutes)	Frequency
$0 < t \leq 10$	36
$10 < t \leq 20$	34
$20 < t \leq 30$	18
$30 < t \leq 40$	12

3 (a) Draw a frequency diagram for the data.



[2 marks]

6 (b) The school has 600 students.

Estimate how many students take more than 20 minutes to travel to school.

.....

Answer .....

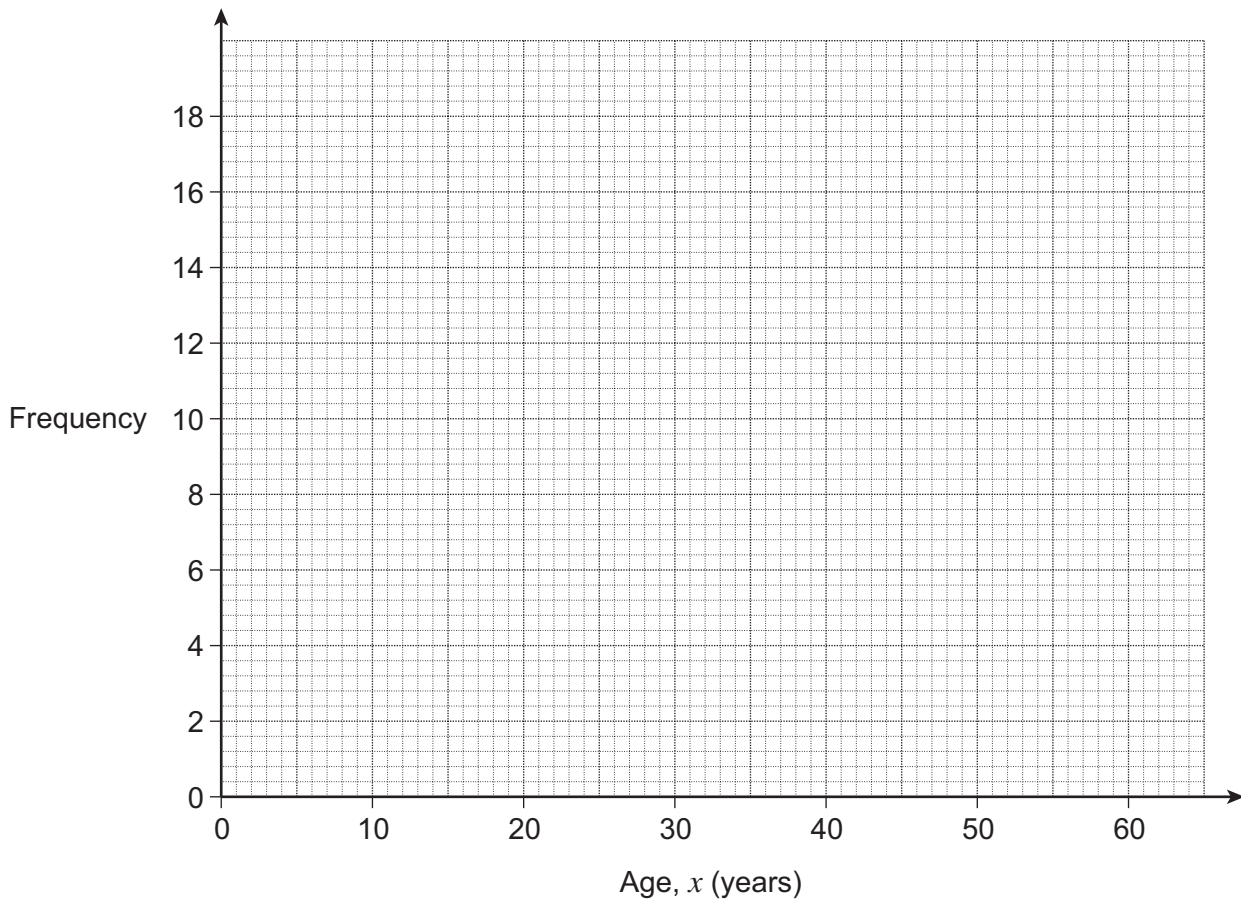
[2 marks]

4

The table shows information about the ages of people in a club.

Age, $x$ (years)	$20 < x \leq 30$	$30 < x \leq 40$	$40 < x \leq 50$	$50 < x \leq 60$
Frequency	4	8	17	12

Draw a frequency polygon to represent the data.



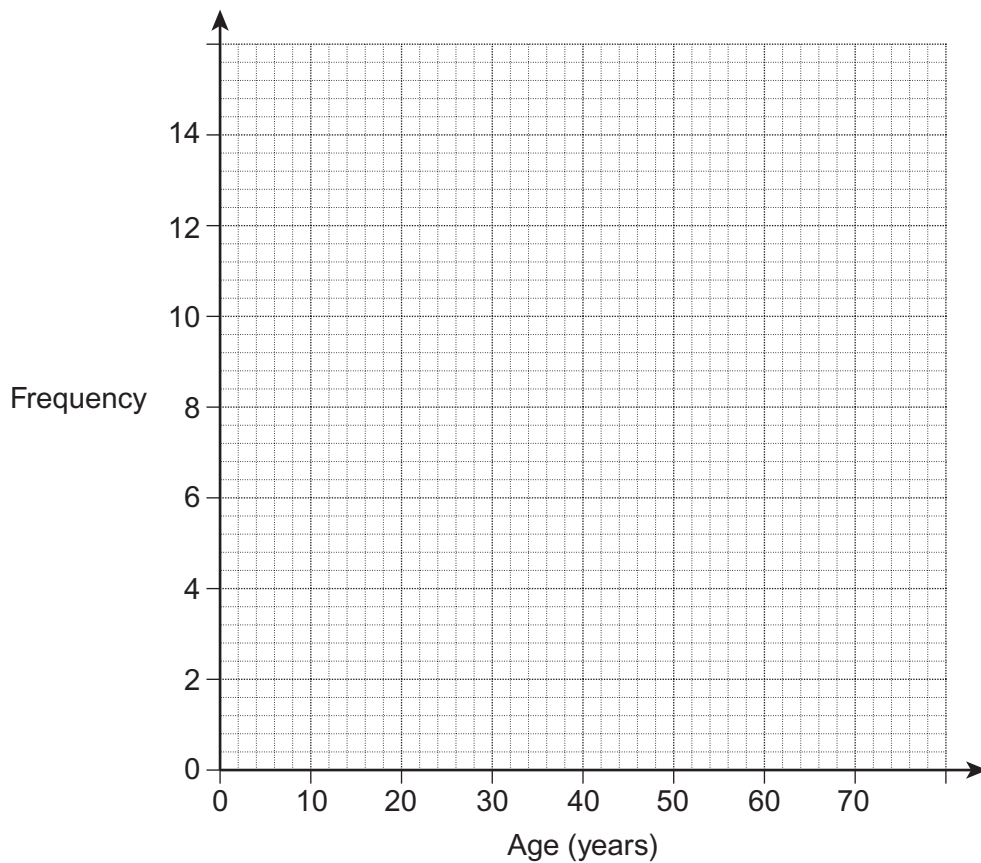
[2 marks]

5 The table shows the ages of some teachers.

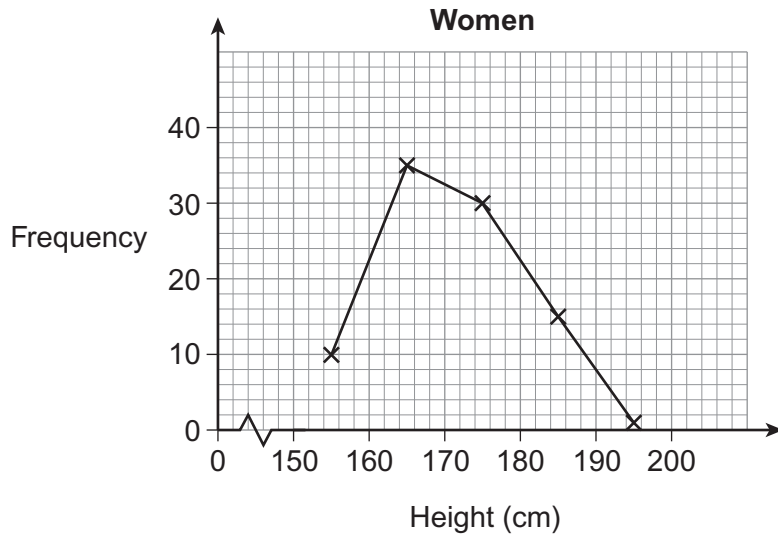
Age (years)	Frequency
$20 \leq \text{age} < 30$	5
$30 \leq \text{age} < 40$	13
$40 \leq \text{age} < 50$	9
$50 \leq \text{age} < 60$	6
$60 \leq \text{age} < 70$	2

Draw a frequency polygon to represent the data.

[2 marks]



6 The frequency polygon shows information about the heights of some women.



The table shows information about the heights of some men.

**Men**

Modal class	$170 \text{ cm} < h \leq 180 \text{ cm}$
Range	22 cm

6 (a) Are the women or men taller on average?  
You **must** show your working.

[1 mark]

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.....

6 (b) Are the heights of the women or the men more consistent?  
You **must** show your working.

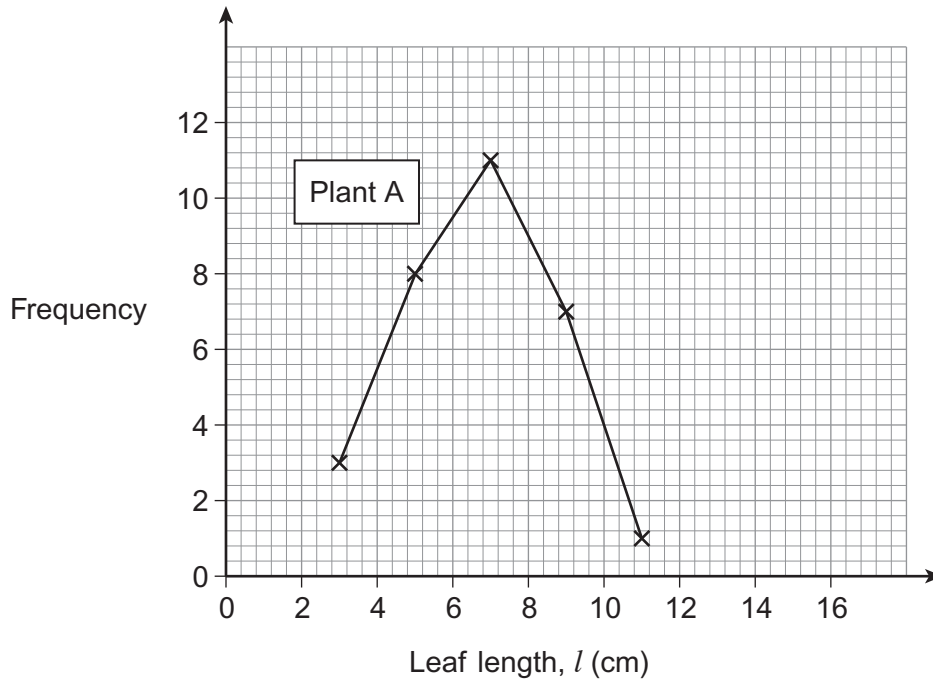
[2 marks]

.....

.....



- 7 Feli is given leaves from two plants in a science lesson.  
The frequency polygon shows the lengths, in cm, of 30 leaves from plant A.



The table shows the lengths of 30 leaves from plant B.

<b>Leaf length, <math>l</math> (cm)</b>	$6 \leq l < 8$	$8 \leq l < 10$	$10 \leq l < 12$	$12 \leq l < 14$	$14 \leq l < 16$
<b>Frequency</b>	4	8	10	5	3

- 6 (a) Draw a frequency polygon for the leaves from plant B on the same grid as for plant A. **[2 marks]**

- 6 (b) Feli finds a leaf on the classroom floor.  
The leaf has a length of 11 cm

Is the leaf more likely to be from plant A or plant B?  
Give a reason for your answer.

**[1 mark]**

.....  
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