AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE MATHEMATICS

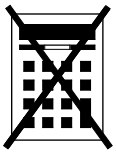
F

Foundation Tier Paper 1 Non-Calculator

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- mathematical instruments
- the Formulae Sheet (enclosed).



You must **not** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26	
TOTAL	

Answer **all** questions in the spaces provided.

Do not write outside the box

1 (a) Circle the answer to $150 \div 5$

[1 mark]

3 30 300 3000

1 (b) Circle the answer to $5 - 7$

[1 mark]

-12 -2 2 12

1 (c) Circle the answer to -3×3

[1 mark]

-9 -6 6 9

Do not write outside the box

2 P is double r.

Circle the correct formula.

[1 mark]

$P = \frac{r}{2}$ $P = r + 2$ $P = r - 2$ $P = 2r$

3 By rounding each number to the nearest 10, estimate the value of 31×18

[3 marks]

Answer _____

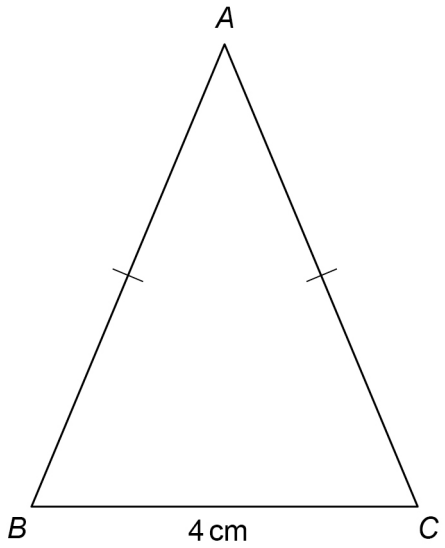
Turn over for the next question

7

Do not write outside the box

4 In this isosceles triangle,

$AB = AC$



Not drawn accurately

The perimeter of the triangle is 22 cm

Work out the length of AB.

[3 marks]

Answer _____ cm

Do not write outside the box

5 After school, Priya will

- go running (R)
- do her homework (H)
- play a video game (V).

Complete the list of the 6 possible orders in which she could do them.

[2 marks]

RHV

Turn over for the next question

5

Do not write outside the box

6 (a) Which statement is correct?

Tick **one** box.

☐ $17 + 3 < 29 - 10$

☐ $17 + 3 = 29 - 10$

☐ $17 + 3 > 29 - 10$

Show working to support your answer.

[2 marks]

6 (b) Work out $60 \div 2 + 4$

[2 marks]

Answer _____

Do not write outside the box

7

	Cost of 100 grams
Cereal	49p
Pasta	14p

Leah buys 400 grams of cereal and 250 grams of pasta.

Work out the **total** cost in £

[4 marks]

Answer £ _____

Turn over for the next question

8

Do not write outside the box

8 (a) For a set of five numbers,

the mode is 8

the median is 12

Work out **one** possible set of five numbers.

[2 marks]

Answer _____ _____ _____ _____ _____

8 (b) Here are the heights, in centimetres, of some children.

98 103 91 85 159 102 91

Which height is an outlier?

[1 mark]

Answer _____ cm

Do not write outside the box

9 Shona has 14 dresses.

50% of these dresses are red.

She gives 5 of her red dresses to a charity shop.

She buys 1 new red dress.

What percentage of the dresses she has now are red?

[4 marks]

Answer _____ %

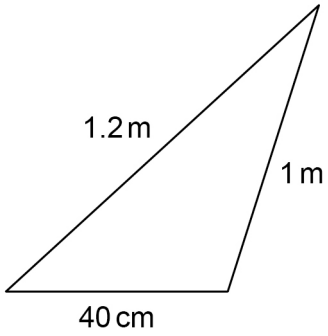
Turn over for the next question

7

Do not write outside the box

10 (a) Here is a triangle.

Not drawn accurately



Work out $\frac{\text{length of shortest side}}{\text{length of longest side}}$

Give your answer as a fraction in its simplest form.

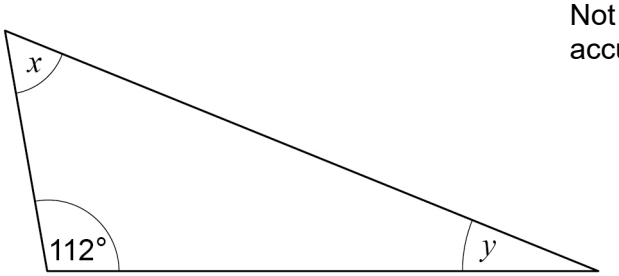
[2 marks]

Answer _____

Do not write outside the box

10 (b) Here is a different triangle.

Not drawn accurately



$x = 3y$

Work out the size of angle y.

[3 marks]

$y =$ _____ °

Turn over for the next question

5

Do not write outside the box

11 Companies A and B sell insurance for mobile phones.

The table shows the **monthly** costs for two types of cover, Damage and Loss.

Company	Damage	Loss
A	£8.65	£12.20
B	£7.25	£14.10

11 (a) Work out the difference in monthly cost for the two types of cover with **Company A**.

[2 marks]

Answer £ _____

Do not write outside the box

11 (b) Ben wants Damage cover with **Company B**.

How much in total will he pay for one **year**?

[3 marks]

Answer £ _____

12 Work out $\frac{11}{18} - \frac{1}{3}$

[2 marks]

Answer _____

7

Do not write outside the box

13 (a) The term-to-term rule for a sequence is

multiply by 2

The 3rd term of the sequence is 46

Work out the 1st term.

Give your answer as a decimal.

[3 marks]

Answer _____

13 (b) The term-to-term rule for a different sequence is

subtract k

The 1st term is 34

The 4th term is 10

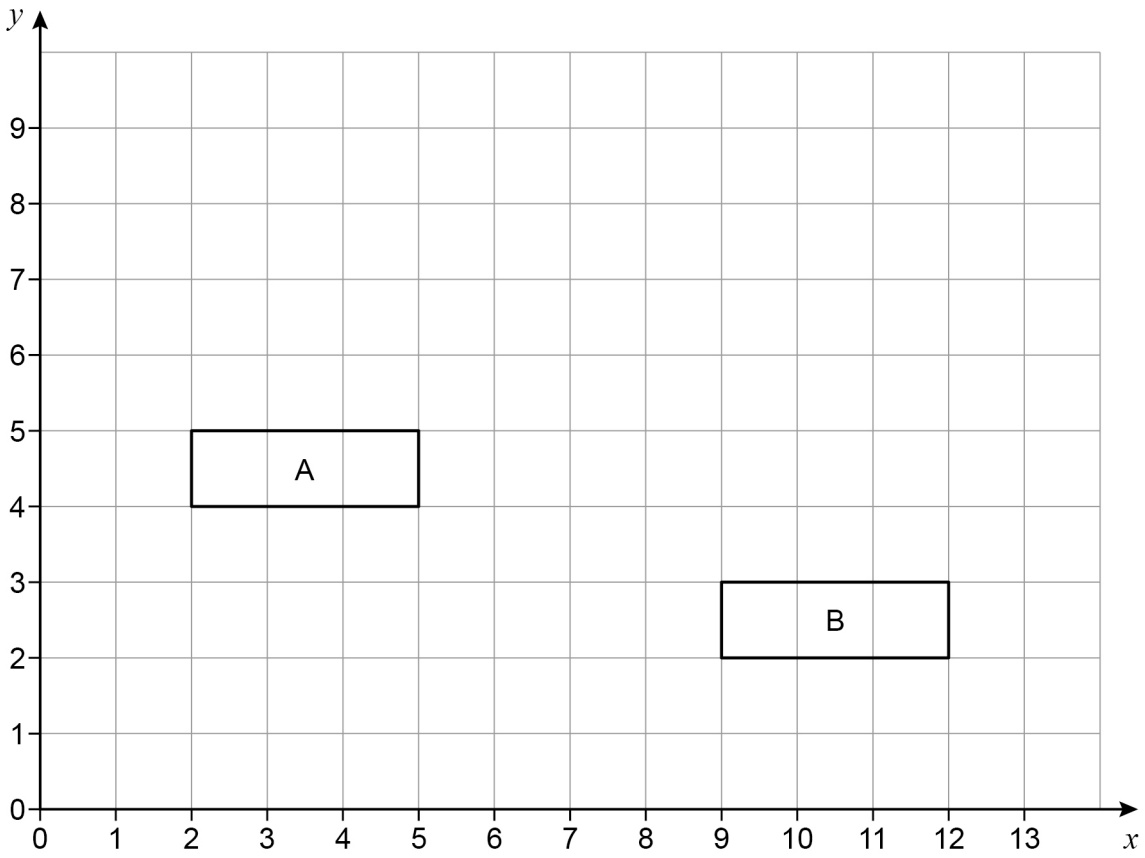
Work out the value of k.

[3 marks]

$k =$ _____

Do not write outside the box

14



Work out the vector that translates shape A to shape B.

[2 marks]

Answer ( )

Turn over for the next question

8

Do not write outside the box

15 In a bag there are only red discs, blue discs and green discs.

There are 10 red discs.

When one disc is picked at random

$$P(\text{red}) = \frac{1}{8}$$

$$P(\text{blue}) = \frac{2}{5}$$

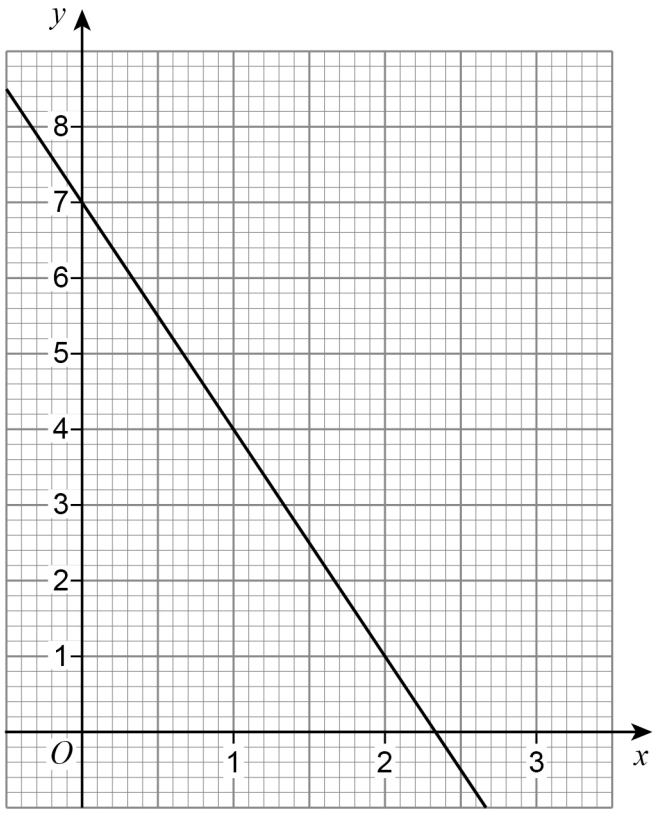
How many **green** discs are in the bag?

[4 marks]

Answer _____

Do not write outside the box

16 Here is the graph of $y = 7 - 3x$



Draw the graph of $y = 2x + 1$ on the grid

and then

work out an approximate solution to $7 - 3x = 2x + 1$

[3 marks]

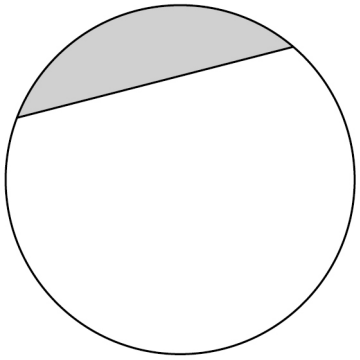
Answer _____

7

Turn over ►

Do not write outside the box

17 Part of this circle is shaded.



Circle the name of the shaded part.

[1 mark]

arc sector chord segment

18 Work out 80 000 000 ÷ 200

Give your answer in standard form.

[2 marks]

Answer _____

Do not write outside the box

19 (a) Work out $\frac{3^{12}}{3^{7}}$

Give your answer as a whole number.

[2 marks]

Answer _____

19 (b) Simplify $8 \times 2^{6} \times 2^{4}$

Give your answer as a power of 2

[2 marks]

Answer _____

7

Do not write outside the box

20 In a group of 98 students

25 study both Art and French

10 study Art but do not study French

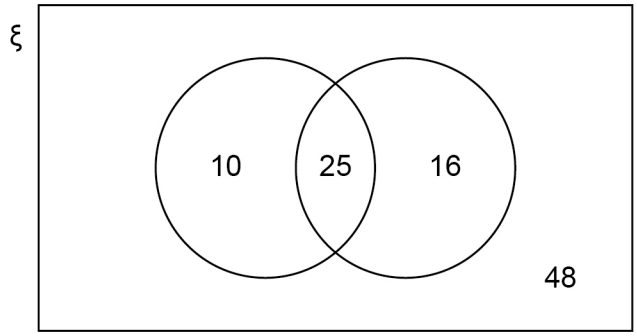
41 study French.

Joel draws this Venn diagram to represent the information.

ξ = the group of 98 students

A = the students who study Art

F = the students who study French



Make **two** criticisms of his diagram.

[2 marks]

Criticism 1 _____

_____

Criticism 2 _____

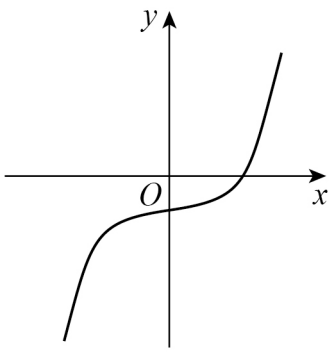
_____

Do not write outside the box

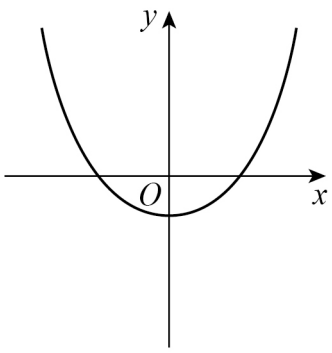
21 Circle the letter of the possible sketch graph of $y = x^3 - 4$

[1 mark]

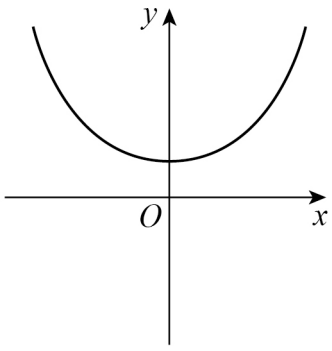
A



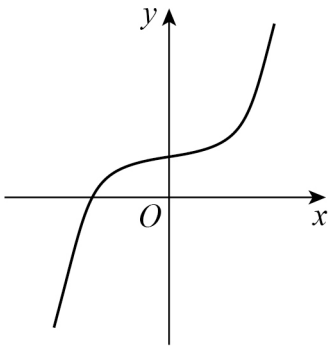
B



C



D



Turn over for the next question

3

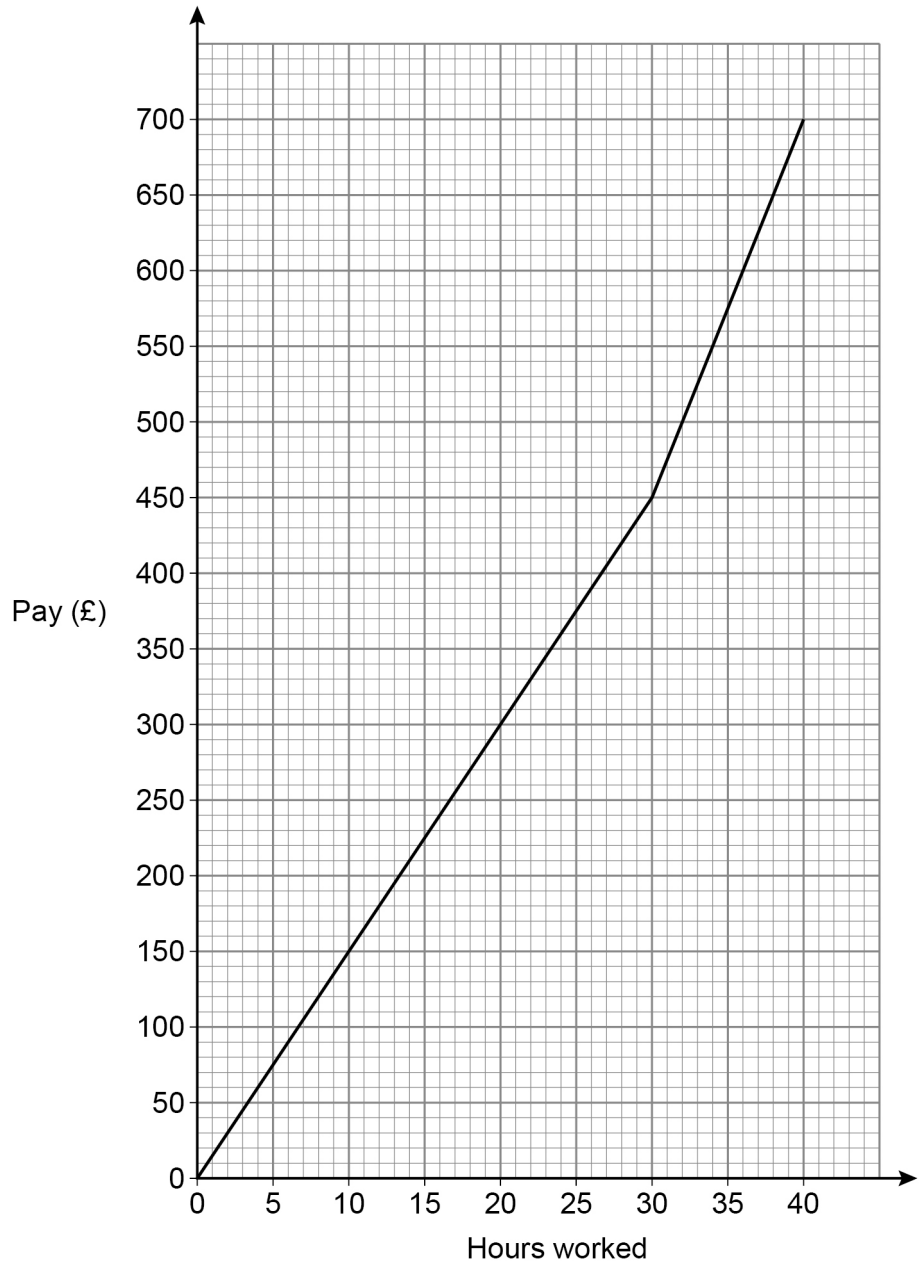
Do not write outside the box

22 In a week, Samir is paid

a basic hourly rate for the first 30 hours worked

an overtime hourly rate for any extra hours worked.

The graph shows his pay for working up to 40 hours in a week.



Do not write outside the box

Work out the ratio basic hourly rate : overtime hourly rate

Give your answer in its simplest form.

[3 marks]

Answer _____ : _____

23 (a) In each box, write a fraction **less** than 1 to make a correct calculation.

[1 mark]

$$\frac{\square}{\square} \times \frac{\square}{\square} = \frac{3}{10}$$

23 (b) In each box, write a decimal **less** than 1 to make a correct calculation.

[1 mark]

$$\square \times \square = 0.06$$

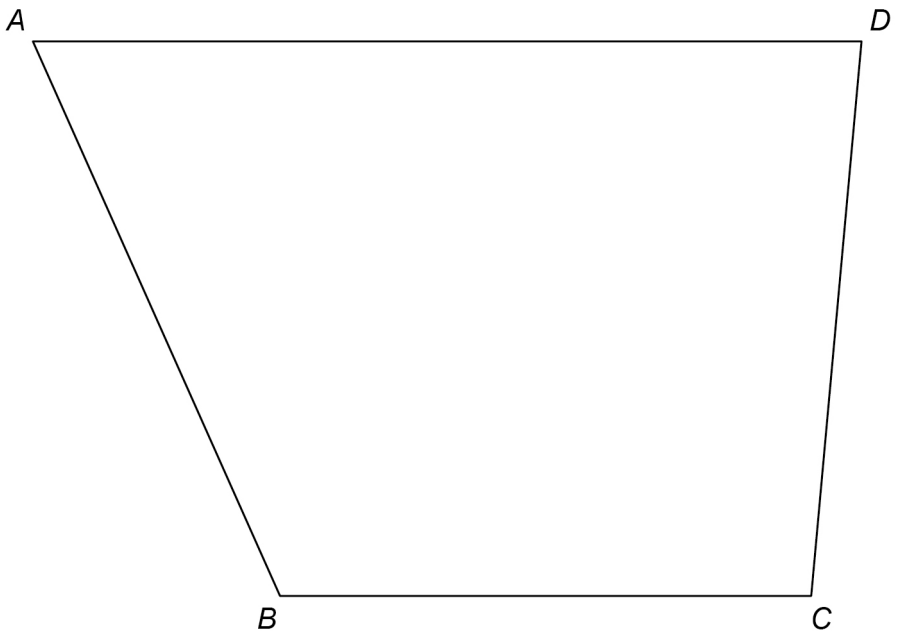
5

Turn over ►

Do not write outside the box

24 Use a ruler and compasses in this question.

ABCD represents a garden.



A tree is to be planted in the garden.

The tree will be in the region that is closer to *AB* than to *BC*.

Label the region, R, where the tree could be planted.

Show all your construction lines.

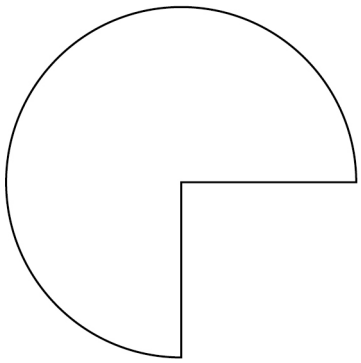
[3 marks]

Do not write outside the box

25 Here are two shapes, P and Q.

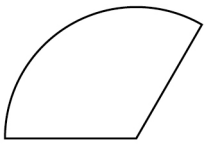
P

$\frac{3}{4}$ of a circle, radius 20 cm



Q

$\frac{1}{3}$ of a circle, radius 15 cm



Not drawn accurately

How many times bigger is the area of P than the area of Q?

You **must** show your working.

[4 marks]

Answer _____

7

Turn over ►

Do not write outside the box

26 Solve $\frac{2w}{15} = \frac{4}{5}$

[2 marks]

$w =$ _____

27 A solid has volume 300 cm^3 and density 2 g/cm^3

Circle the mass of the solid.

[1 mark]

150 g 298 g 302 g 600 g

28 $x : y$ is 9 : 5

Circle the value of $\frac{2x}{y}$

[1 mark]

$\frac{5}{18}$ $\frac{18}{5}$ $\frac{9}{10}$ $\frac{10}{9}$

END OF QUESTIONS

4

Do not write outside the box

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**

Do not write outside the box

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**

Do not write outside the box

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**

Do not write outside the box

Do not write outside the box

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Copyright information

For confidentiality purposes, all acknowledgements of third-party copyright material are published in a separate booklet. This booklet is published after each live examination series and is available for free download from www.aqa.org.uk.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team.

Copyright © 2022 AQA and its licensors. All rights reserved.