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GCSE Maths for post-16

A one-year course

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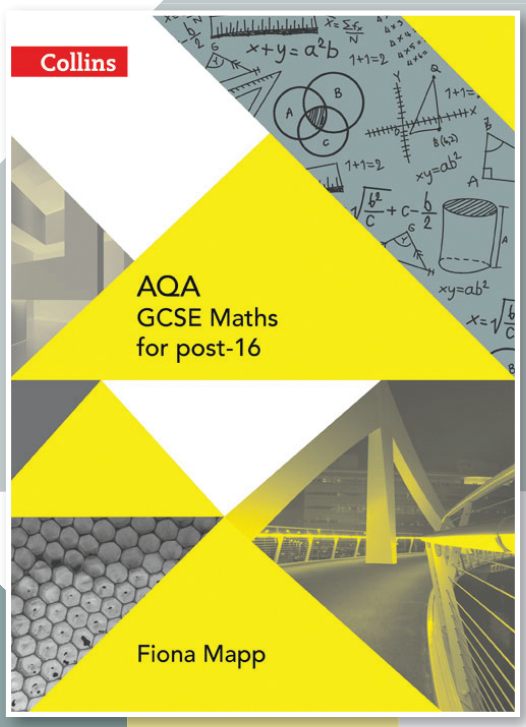

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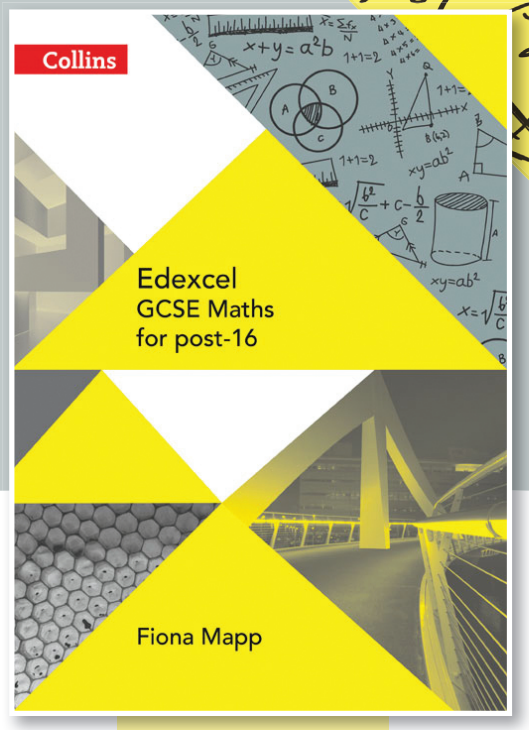

For Edexcel

Help post-16 maths students succeed at GCSE with resources that build exam confidence for AQA and Edexcel.

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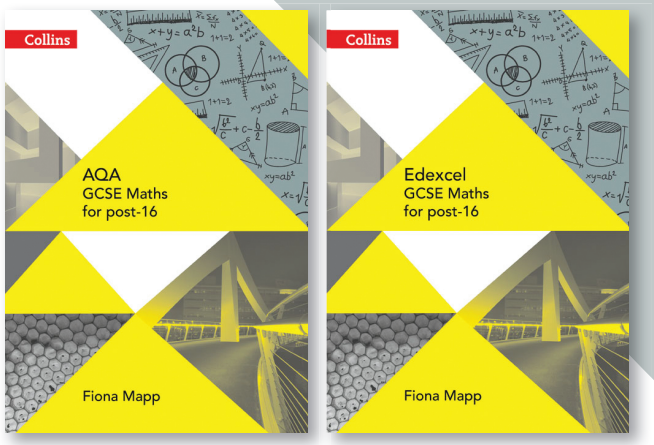
GCSE Maths for post-16

A one-year course

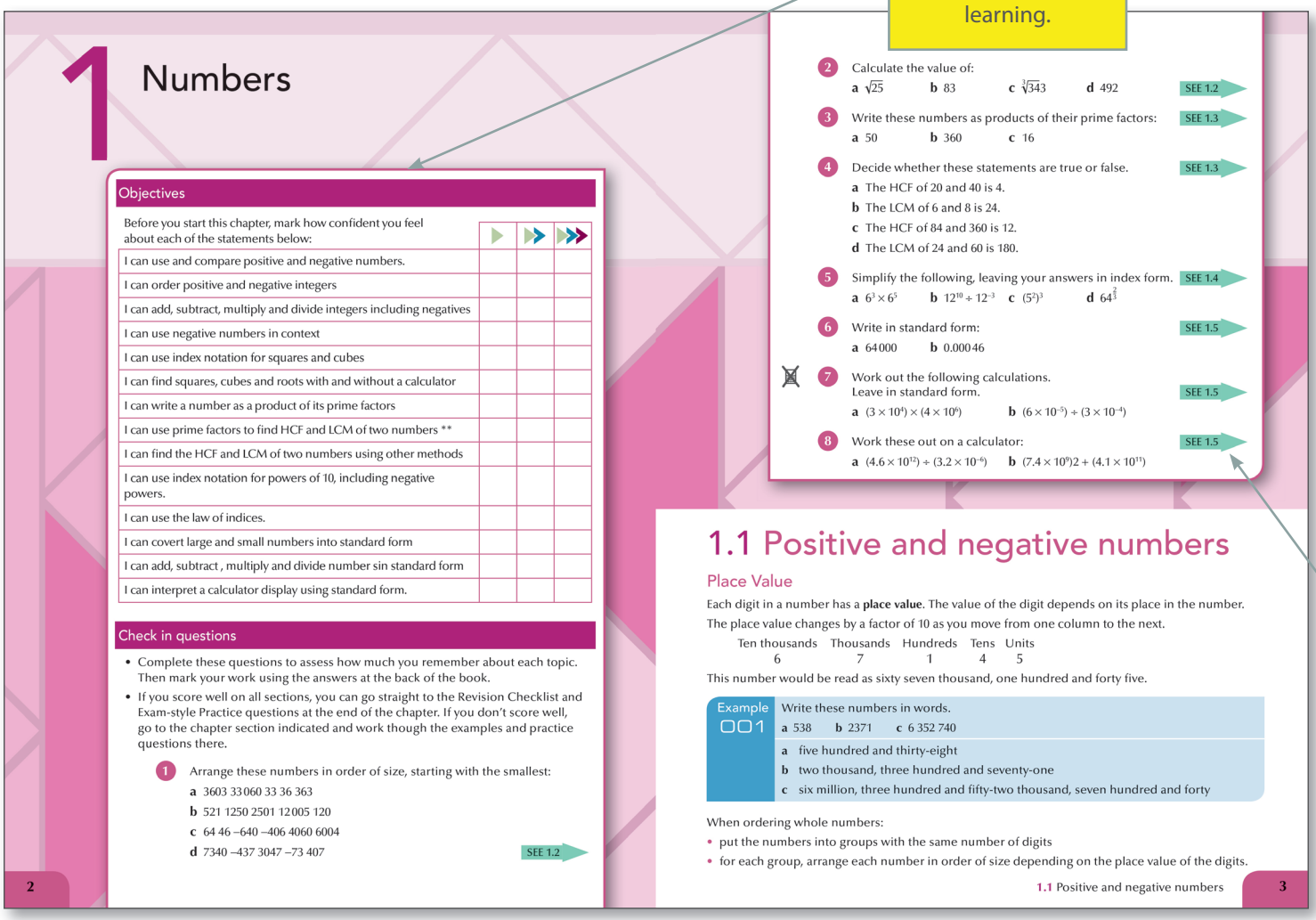
AUTHOR: **FIONA MAPP**



STUDENT BOOK

- **Covers all of the key topics** that learners need to succeed at GCSE, with plenty of focused practice.
- **Targets Grade 5 at new GCSE 9-1** but provides support to get there and stretch and deepen opportunities to go beyond.
- **Helps students to pick up smart marks** and be ready for assessment with board-specific exam tips and techniques.
- **Diagnostics** make it easy teachers to identify skills gaps, track progress and provide a personalized learning journey for students.
- Can be used for a fast-track resit or a full year course.

Self-diagnostic charts help students to identify gaps in knowledge and skills, taking control of their own learning.



Samples taken from the **Edexcel GCSE Maths for post-16 Student Book**

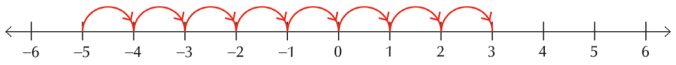
New for July 2017

Adding and subtracting directed numbers

Look at the following:

The temperature at 6am was –5°C.

By 10am it had risen 8 degrees.



–5° + 8° = 3°

So the new temperature was 3°C.

It is useful to draw a number line to help when answering questions of this type.

Example 005 Find the value of –2 – 4

When the number to be added (or subtracted) is negative, the normal direction of movement is reversed.

–4 – (–3) is the same as –4 + 3 = –1

When two = signs or two – signs are together, these rules are used:

+ (+) = +
– (–) = +
} Like signs give an addition

– (+) = –
+ (–) = –
} Unlike signs give a subtraction

–2 + (–3) = –2 – 3 = –5

–3 – (+5) = –3 – 5 = –8

6 – (–4) = 6 + 4 = 10

5 + (–2) = 5 – 2 = 3

Multiplying and dividing directed numbers

Multiply and divide directed numbers as normal and then find the sign for the answer using the following rules.

- Two like signs (both + or both –) give a positive answer
- Two unlike signs (one + and the other –) give a negative answer.

(+) × (+) = +
(–) × (–) = +

Example 006 Try these.

a –6 × 3 **b** –4 × (–2) **c** $\frac{-20}{-2}$ **d** $\frac{9}{-3}$

a –18 **b** 8 **c** 10 **d** –3

Exam tips: It is really important to remember the rules of mu… numbers, because they are also used in algebra.

1.1

Clear worked examples reinforce learning.

Check your students are ready for assessment with **graduated exam style questions**.

Exam tips help students get the most out of each type of question.

Self-mark questions test recall of the topic and link to relevant teaching content.

Exam-style Questions

1. Sam uses these cards to make 3-digit numbers. Write down a number she could make which is less than 300.

2. Which of these has a value which is equal to the value of –13 + 8 ? Tick all the boxes which are equal to this value.

5 – 10 ☐ –11 + 6 ☐ –8 – –3 ☐ 10 – 5 ☐

3. Simplify 5 × 5 × 5 × 5. Give your answer in index form.

4. Circle the square numbers.

–4	13	120	9	1

5. Write down the value of $(-7)^{-3}$

6. What is the reciprocal of $3\frac{1}{8}$?

7. Jess simplifies $8^4 \times 8^3$ and gives the answer as 8^{12}. Is she correct? Give a reason for your answer.

8. Find the highest common factor of 28 and 60.

9. Write 116 as a product of prime factors. Give your answer in index notation.

10. Find the lowest common multiple of 12 and 30

11. Write down the value of $125^{\frac{1}{3}}$

12. What is the value of 16^0. Circle your answer.

0	1	4	–4	16

13. Which of these are surds? Tick a box or boxes to show your answer.

$\sqrt{25}$ ☐ $5\frac{1}{8}$ ☐ $\frac{1}{3}$ ☐ $\sqrt{48}$ ☐ $\sqrt[3]{2}$ ☐

14. Which of these is not a number in standard form? Circle your answer.

10 × 10–5	8 × 10–6	6.2 × 1013	4.9 × 103	1.01 × 1014

15. The light on Tom's smoke alarm flashes every 50 seconds. The light on Tom's house alarm flashes every two minutes. They flash together at 2 am. What is the next time they flash together?

16. Written as a product of prime factors, 70 = 2 × 5 × 7
Find the value of a if 700 = 2a × 5a × 7

17. Work out $(8 \times 10^3) + (6 \times 10^5)$. Give your answer in standard form.

18. Find the value of $(9 \times 10^5) \div (3 \times 10^3)$. Give your answer as an ordinary number.

19. The population of Iceland is 3×10^5. The population of Scotland is 5.4×10^6. How many times larger is the population of Scotland than the population of Iceland?

20. Write down the value of $\left(\frac{2}{5}\right)^{-2}$.

Now go back to the list of objectives at the start of this chapter.
How confident do you now feel about each of them?

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