

Name	Date started	Target end date
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WJEC Level 2 Additional Mathematics – Question Pack

Combining algebraic fractions into a single fraction and simplifying expressions by factorising and cancelling.

REVISE
.wales

Algebraic fractions & simplification

Algebra · Level 2 Certificate (9550) · calculator allowed

Combining algebraic fractions into a single fraction and simplifying expressions by factorising and cancelling.

LEVEL 2 · 9550

Estimated time for entire question pack: ~1 hours 7 minutes

At the Additional Maths pace of ~1.2 min/mark (56 marks across 11 questions).

*You are advised to **not** attempt to complete all of this in one sitting.*

ABOUT THIS QUESTION PACK

This is a **focused single-topic practice pack**, not a single mock paper. It gathers every question on this topic from the 2011–2024 papers.

Questions are ordered by year, newest first.

INSTRUCTIONS

Use black ink or black ball-point pen. Show all working – method marks are awarded for clear setup.

A calculator is allowed throughout this qualification.

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Algebraic fractions & simplification – what's examined

WJEC Level 2 Additional Mathematics (9550) · single written paper, calculator allowed.

Single fraction Algebra

- Find a common denominator.
- Combine numerators carefully with brackets.
- Simplify the result.

Simplifying Algebra

- Factorise numerator and denominator.
- Cancel common factors only.
- Never cancel across a + or -.

Care points Method

- Keep brackets when subtracting fractions.
- State any value that makes a denominator 0.
- Leave in fully simplified form.

Algebraic fractions & simplification in one page

Quick-reference notes – revisit before each question. Don't use during the questions.

Common denominator

$$a/b + c/d = (ad + bc) / bd$$

Cancel factors

$$(x^2-9)/(x+3) = (x-3)(x+3)/(x+3) = x-3.$$

Golden rule

You may cancel a **factor** (something multiplying the whole top and bottom) – never a single term.

Subtracting

Put the second numerator in brackets so the minus sign hits every term.



4. Simplify each of the following.

(a) $5x^{\frac{3}{5}} \times 6x^{\frac{4}{5}}$

[1]

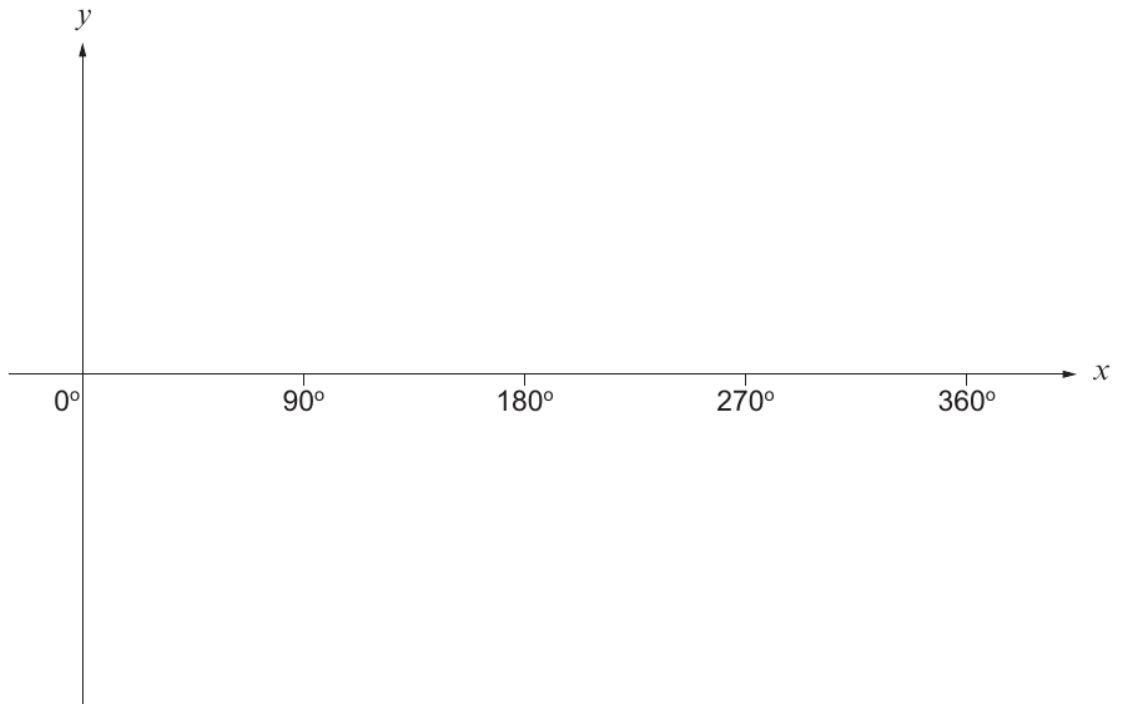
(b) $(6x^{\frac{4}{5}} \times 6x^{\frac{4}{5}})^{\frac{1}{2}}$

[1]

(c) $\frac{6x^{\frac{2}{7}} + 3x^{\frac{4}{7}} + 6x^{\frac{1}{7}}}{6x^{\frac{1}{7}}}$

[2]

15. (a) On the axes below, sketch the graph of $y = 4\sin x$ for values of x from 0° to 360° . [2]



- (b) Find all the solutions of the equation $4\sin x = 1$ for values of x from 0° to 360° . [2]

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6. (a) Simplify $\frac{3}{5+\sqrt{2}}$, leaving your answer in surd form.

Do not use a calculator to answer this question.
You **must** show all your working.

[3]

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- (b) Showing all your working, simplify each of the following.

(i)
$$\frac{x^{-\frac{2}{5}} \times x^{\frac{17}{5}}}{x^{\frac{1}{2}}}$$

[2]

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(ii)
$$\frac{8x^{\frac{1}{9}} + x^{\frac{2}{9}}}{x^{\frac{2}{9}}}$$

[2]

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17. Showing all your working, simplify each of the following.

(a)
$$\frac{5x^{\frac{5}{8}} \times 4x^{\frac{3}{8}}}{x^{\frac{2}{3}}}$$

[2]

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(b)
$$\frac{6x^{\frac{1}{4}} + 3x^{\frac{3}{4}}}{3x^{\frac{1}{4}}}$$

[2]

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END OF PAPER

2. Express as a single fraction in its simplest form.

$$1 - \frac{3x - y}{x + 2y}$$

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[3]

End of question pack