

## National 5 Maths Algebraic Fractions

SQA past paper and specimen paper  
questions and answers by topic

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National 5 Maths  
SQA 2014 Paper 2  
Question 9

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Express  $\frac{7}{x+5} - \frac{3}{x}$   $x \neq -5, x \neq 0$  as a single fraction in its simplest form. **3**

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Answer:

$$\frac{4x-15}{x(x+5)}$$

**National 5 Maths  
SQA 2015 Paper 1  
Question 12**

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Simplify  $\frac{x^2 - 4x}{x^2 + x - 20}$ .

**3**

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Answer:

$$\frac{x}{x+5}$$

National 5 Maths  
SQA 2015 Paper 2  
Question 7

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Express  $\frac{5t}{s} \div \frac{t}{2s^2}$  in its simplest form.

3

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Answer:

10s

National 5 Maths  
SQA 2016 Paper 2  
Question 13

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Express

$$\frac{3}{x-2} + \frac{5}{x+1}, \quad x \neq 2, x \neq -1$$

as a single fraction in its simplest form.

3

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Answer:

$$\frac{8x-7}{(x-2)(x+1)}$$

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Express

$$\frac{4}{x+2} - \frac{3}{x-4}, \quad x \neq -2, x \neq 4$$

as a single fraction in its simplest form.

3

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Answer:

$$\frac{x-22}{(x+2)(x-4)}$$

National 5 Maths  
SQA 2017 Paper 1  
Question 11

Express  $\frac{3}{a^2} - \frac{2}{a}$ ,  $a \neq 0$ , as a single fraction in its simplest form.

2

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Answer:

$$\frac{3-2a}{a^2}$$

National 5 Maths  
SQA 2017 Paper 2  
Question 9

- 
- (a) Factorise  $4x^2 - 25$ . 1
- (b) Hence simplify  $\frac{4x^2 - 25}{2x^2 - x - 10}$ . 3
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Answers:

(a)  $(2x - 5)(2x + 5)$

(b)  $\frac{2x + 5}{x + 2}$



National 5 Maths  
SQA 2018 Paper 2  
Question 15

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Express

$$\frac{n}{n^2 - 4} \div \frac{3}{n - 2}, \quad n \neq -2, n \neq 2$$

as a single fraction in its simplest form.

3

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Answer:

$$\frac{n}{3(n+2)} \text{ or } \frac{n}{3n+6}$$

**National 5 Maths**  
**SQA 2019 Paper 2**  
**Question 13**

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Find an expression for the gradient of the line joining point A(6,9) to point B( $4p, 4p^2$ ).

Give your answer in its simplest form.

**3**

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Answer:

$$\frac{2p+3}{2}$$

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Express

$$\frac{4}{x-2} - \frac{3}{x+5}, \quad x \neq 2, x \neq -5$$

as a single fraction in its simplest form.

3

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Answer:

$$\frac{x+26}{(x-2)(x+5)}$$

Express

$$\frac{6x}{y} \div \frac{2x^2}{y+5}, \quad x \neq 0, y \neq 0, y \neq -5$$

as a single fraction in its simplest form.

3

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Answer:

$$\frac{3(y+5)}{xy}$$

National 5 Maths  
SQA 2022 Paper 1  
Question 12

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Express  $\frac{4}{x+2} \div \frac{5}{(x+2)^2}$ ,  $x \neq -2$  as a single fraction in its simplest form.

2

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Answer:

$$\frac{4(x+2)}{5} \text{ or } \frac{4x+8}{5}$$

National 5 Maths  
SQA 2022 Paper 2  
Question 12

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Simplify  $\frac{2ab + 6a}{b^2 - 9}$ .

3

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Answer:

$$\frac{2a}{b-3}$$

National 5 Maths  
SQA 2023 Paper 2  
Question 10

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Express

$$\frac{7}{x-3} - \frac{2}{x}, \quad x \neq 3, x \neq 0$$

as a single fraction in its simplest form.

3

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Answer:

$$\frac{5x+6}{x(x-3)}$$

National 5 Maths  
SQA 2023 Paper 2  
Question 12

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Simplify  $\frac{x^2 - 16}{x^2 + x - 20}$ .

3

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Answer:

$$\frac{x+4}{x+5}$$