

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

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

Answer:

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

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

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

3

Answer:

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

National 5 Maths
SQA 2015 Paper 2
Question 7

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

3

Answer:

10s

National 5 Maths
SQA 2016 Paper 2
Question 13

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

Answer:

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

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

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

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
-

Answers:

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

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

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

Answer:

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

National 5 Maths
SQA 2019 Paper 2
Question 13

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

Answer:

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

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

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

Answer:

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

National 5 Maths
SQA 2022 Paper 1
Question 12

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

2

Answer:

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

National 5 Maths
SQA 2022 Paper 2
Question 12

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

3

Answer:

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

National 5 Maths
SQA 2023 Paper 2
Question 10

Express

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

as a single fraction in its simplest form.

3

Answer:

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

National 5 Maths
SQA 2023 Paper 2
Question 12

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

3

Answer:

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

National 5 Maths
SQA 2024 Paper 2
Question 6

-
- (a) Factorise $y^2 - 6y$. 1
- (b) Hence simplify $\frac{y^2 - 6y}{y^2 - 3y - 18}$. 2
-

Answers:

(a) $y(y - 6)$

(b) $\frac{y}{y + 3}$

National 5 Maths
SQA 2024 Paper 2
Question 12

Express

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

as a single fraction in its simplest form.

3

Answer:

$$\frac{5x+7}{(x+5)(x-4)}$$

National 5 Maths
SQA 2025 Paper 1
Question 14

Express

$$\frac{5}{x-1} - \frac{4}{x}, \quad x \neq 1, \quad x \neq 0$$

as a single fraction in its simplest form.

3

Answer:

$$\frac{x+4}{x(x-1)}$$