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National 5 Maths Algebraic Fractions

SQA past paper and specimen paper questions and answers by topic

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

Answer:

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

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

3

Answer:

$\dfrac{x}{x+5}$

Express $\dfrac{5t}{s} \div \dfrac{t}{2s^2}$ in its simplest form.   **3**

Answer:

$10s$

Express

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

as a single fraction in its simplest form. **3**

Answer:

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

Express

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

as a single fraction in its simplest form. **3**

Answer:

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

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

2

Answer:

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

(a) Factorise $4x^2 - 25$. **1**

(b) Hence simplify $\dfrac{4x^2 - 25}{2x^2 - x - 10}$. **3**

Answers:

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

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

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:

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

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:

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

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

2

Answer:

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

Simplify $\dfrac{2ab+6a}{b^2-9}$.   **3**

Answer:

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

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:

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

Simplify $\dfrac{x^2-16}{x^2+x-20}$.   **3**

Answer:

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