National 5 & Int. 2 — Algebraic Fractions

2018 P2 Q15	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
Ans	$\frac{n}{3(n+2)}$	
2017 P1 Q11	Express $\frac{3}{a^2} - \frac{2}{a}$, $a \neq 0$, as a single fraction in its simplest form.	2
Ans	$\frac{3-2a}{a^2}$	
2017 P2 Q9	(a) Factorise $4x^2 - 25$. (b) Hence simplify $\frac{4x^2-25}{2x^2-x-10}$.	1 3
Ans	*(a) (2x – 5)(2x + 5)* *(b)* $\frac{2x+5}{x+2}$	
2016 P2 Q13	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
Ans	$\frac{8x-7}{(x-2)(x+1)}$	
2015 P1 Q12	Simplify $\frac{x^2-4x}{x^2+x-20}$.	3
Ans	$\frac{x}{x+5}$	

2015 P2 Q7	Express $\frac{5t}{s} \div \frac{t}{2s^2}$ in its simplest form.	3
Ans	$10s$	
2014 P2 Q9	Express $\frac{7}{x+5} - \frac{3}{x}$ $x \neq -5,\ x \neq 0$ as a single fraction in its simplest form.	3
Ans	$\frac{4x-15}{x(x+5)}$	
2014 P2 Q9	Express $\frac{2}{(x-4)} + \frac{5}{x}, \quad x \neq 0,\ x \neq 4,$ as a single fraction in its simplest form.	3
Ans	$\frac{7x-20}{x(x-4)}$	
2013 P1 Q7	Simplify $\frac{(x+4)^2}{x^2-x-20}$.	3
Ans	$\frac{x+4}{x-5}$	
2013 P2 Q11	Express $\frac{3}{x+2} + \frac{5}{x-1} \quad x \neq -2, \quad x \neq 1$ as a single fraction in its simplest form.	3
Ans	$\frac{8x+7}{(x+2)(x-1)}$	
2012 P2 Q7	Express as a single fraction $\frac{a}{b} + \frac{b}{a}, \quad a \neq 0, \quad b \neq 0.$	2

Ans	$\frac{a^2+b^2}{ab}$	
2011 P2 Q8	Simplify $\frac{3x-15}{(x-5)^2}$.	2
Ans	$\frac{3}{x-5}$	
2011 P2 Q9	Express $\frac{3}{x}-\frac{4}{x+1}, \quad x \neq 0, \ x \neq -1$ as a single fraction in its simplest form.	3
Ans	$\frac{3-x}{x(x+1)}$	
2010 P2 Q6	Express $\frac{s^2}{t} \times \frac{3t}{2s}$ as a fraction in its simplest form.	2
Ans	$\frac{3s}{2}$	
2009 P2 Q8	Express $\frac{2}{x-1}+\frac{4}{x+2} \quad x \neq 1, \ x \neq -2$ as a single fraction in its simplest form.	3
Ans	$\frac{6x}{(x-1)(x+2)}$	
2008 P2 Q11	Express $\frac{2}{a}-\frac{3}{(a+4)}, \quad a \neq 0, \ a \neq -4,$ as a single fraction in its simplest form.	3
Ans	$\frac{8-a}{a(a+4)}$	

2007 P2 Q7b	Simplify $\dfrac{(2x+5)^2}{(2x-1)(2x+5)}$.	1
Ans	$\dfrac{2x+5}{2x-1}$	
2007 P2 Q10	Express $\dfrac{5p^2}{8} \div \dfrac{p}{2}$ as a fraction in its simplest form.	3
Ans	$\dfrac{5p}{4}$	
2006 P2 Q7	Express $\dfrac{3}{(x+1)} - \dfrac{1}{(x-2)}$, $x \neq -1$, $x \neq 2$ as a single fraction in its simplest form.	3
Ans	$\dfrac{2x-7}{(x+1)(x-2)}$	
2004 P2 Q11a	Express $\dfrac{4}{x+3} + \dfrac{3}{x}$, $x \neq -3$, $x \neq 0$, as a single fraction in its simplest form.	3
Ans	$\dfrac{7x+9}{x(x+3)}$	
2003 P1 Q6b	Simplify $\dfrac{2x+2}{(x+1)^2}$.	2
Ans	$\dfrac{2}{x+1}$	
2003 P2 Q11b	Express $\dfrac{a}{x} - \dfrac{b}{y}$, $x \neq 0$, $y \neq 0$, as a fraction in its simplest form.	2
Ans	$\dfrac{ay-bx}{xy}$	
2002W P2 Q12b	Express $\dfrac{4}{x} - \dfrac{3}{x-3}$, $x \neq 0$, $x \neq 3$, as a single fraction in its simplest form.	3

Ans	$\frac{x-12}{x(x-3)}$	
2002 P1 Q7b	Express as a fraction in its simplest form $\frac{1}{x^2}+\frac{1}{x}, \qquad x \neq 0.$	2
Ans	$\frac{1+x}{x^2}$	
2002 P2 Q5b	(*a*) (i) Factorise completely $3y^2 - 6y.$ (ii) Factorise $y^2 + y - 6.$ (*b*) Hence express $\frac{3y^2-6y}{y^2+y-6}$ in its simplest form.	1 2 2
Ans	(a) (i) $3y(y-2)$ (ii) $(y+3)(y-2)$ (b) $\frac{3y}{y+3}$	
2001 P1 Q8a	Express $\frac{3}{x}-\frac{5}{x+2}$, $x \neq 0$, $x \neq -2$, as a single fraction in its simplest form.	3
Ans	$\frac{6-2x}{x(x+2)}$	