



Algebraic Fractions

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1	16	$\frac{x-3}{x+2}$	4	B2 $(x-3)(x-2)$ or B1 $(x+a)(x+b)$ where $ab=6$ or $a+b=-5$ B1 $(x-2)(x+2)$
2	4	$\frac{15a+32}{40}$ oe	2	B1 $15a+32$ seen or SC1 $\frac{15a}{40} + \frac{32}{40}$ on answer line
3	8	$\frac{5x-3}{6}$	2	B1 for $5x-3$ seen SC1 $\frac{5}{6}x - \frac{3}{6}$ on answer line
4	7	$\frac{5+x}{2x}$	2	M1 $4+1+x$ seen or M1 $\frac{10+2x}{4x}$ oe
5	12	$\frac{x-7}{(x-1)(x+2)}$	3	M1 $3(x-1) - 2(x+2)$ seen B1 denominator correct seen A1 all correct
6	24	(a) $\frac{x-2y}{xy}$ (b) $\frac{x}{3}$ www	2 3	B1 correct numerator B1 correct denominator M1 $x(x+1)$ M1 $3(x+1)$
7	15	$\frac{1-3x}{(x+1)(x+5)}$ www	4	M1 $(x+1)^2 - x(x+5)$ oe B1 $x^2 + x + x + 1$ B1 denominator(s) $(x+1)(x+5)$ or $x^2 + 6x + 5$
8	16	$\frac{5x-2}{(x-2)(x+2)}$	3	M1 $2(x+2) + 3(x-2)$ seen B1 $(x-2)(x+2)$ common denom. seen
9	10	$\frac{2x+2}{(x+10)(x+4)}$ oe	3	B1 common denominator $(x+10)(x+4)$ oe seen B1 $3(x+4) - (x+10)$ seen oe
10	18	$\frac{1-5x+x^2}{x(1-2x)}$ or $\frac{1-5x+x^2}{x-2x^2}$	4	M1 for $(1-x)(1-2x) - x(2+x)$ seen B1 for $1-x-2x+2x^2$ or $1-3x+2x^2$ seen B1 for $x(1-2x)$ oe as a common denominator
11	13	$\frac{23-2x}{12}$	3	M1 for two correct algebraic fractions with a common denominator of 12 M1 for correctly collecting their terms M1 for dealing correctly with the 1
12	21	$\frac{h+4}{h+5}$	4	B2 for $(h-5)(h+4)$ seen B1 for $(h-5)(h+5)$ If B2 not scored then SC1 for $(h+a)(h+b)$ where $a+b=-1$ or $ab=-20$

13	20	$\frac{x+4}{x(x-5)}$ oe cao	5	B2 $(x-5)(x+4)$ seen or SC1 $(x+a)(x+b)$ where $ab = -20$ or $a+b = -1$ B2 $x(x-5)(x-5)$
14	18 (a)	$(x+6)(x-5)$	2	SC1 for $(x+a)(x+b)$ where $ab = -30$ or $a+b$
	(b)	$\frac{x+4}{x+6}$ final answer	1	
15	22	$\frac{5x+13}{(x+3)(x+2)}$ oe final answer	3	B1 for common denominator $(x+3)(x+2)$ seen M1 for $2(x+2) + 3(x+3)$ soi
16	13	$\frac{8x}{(x-3)(x+1)}$	4	B1 for common denominator $(x-3)(x+1)$ seen B1 for $(x+3)(x+1) - (x-1)(x-3)$ soi B1 for $x^2 + 3x + x + 3$ or $x^2 - 3x - x + 3$ soi
17	14	$\frac{2t-5}{t-1}$ final answer	3	B1 for $\frac{3(t-1)}{t-1}$ or better B1 for $3(t-1) - (t+2)$ oe or better
18	8	$\frac{2}{x(x+1)}$	3	B1 for common denominator $x(x+1)$ seen M1 for $2(x+1) - 2x$ oe or better
19	12	$-\frac{3}{5}$ oe	3	B2 for $5x + 3 = 0$ oe or B1 for a numerator of $3(x+1) + 2x [= 0]$ seen
20	19	$\frac{x-1}{3}$ final answer	4	B2 for $(x-1)(x+7)$ or SC1 for $(x+a)(x+b)$ where $ab = -7$ or $a+b = 6$ B1 for $3(x+7)$

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21	<p>21 (a)</p> $\frac{x+7}{(2x-1)(x+2)}$ <p>Final answer</p>	3	<p>B1 for $3(x+2) - 1(2x-1)$ seen or better</p> <p>B1 for denominator $(2x-1)(x+2)$ oe seen</p> <p>SC2 for final answer $\frac{x+5}{(2x-1)(x+2)}$</p>
	<p>(b)</p> $\frac{2x}{x+7}$ <p>Final answer</p>	4	<p>M1 for $4x(x-4)$ or partial factorisation of numerator</p> <p>and M2 for $[2](x+7)(x-4)$ oe</p> <p>or M1 for $[2](x^2 + 3x - 28)$</p> <p>or $[2](x+a)(x+b)$ where $ab = -28$ or $a+b = 3$</p> <p>SC3 for answer $\frac{4x}{2x+14}$ oe</p>
22	<p>13</p> $\frac{16x^2 + 18x + 9}{6x}$ <p>final answer</p>	4	<p>M2 for 9 [+] $4x^2$ [+] $18x$ [+] $12x^2$ or better</p> <p>or M1 for 2 of these</p> <p>and M1FT for adding their four 'numerators' together correctly</p> <p>and B1 for denominator $6x$ to a maximum of 3 marks</p>
23	<p>15</p> $\frac{2x-23}{(x+2)(2x-5)}$ <p>final answer</p>	3	<p>B1 for a common denominator of $(x+2)(2x-5)$</p> <p>B1 for $3(2x-5) - 4(x+2)$ or better</p> <p>or SC2 for final answer $\frac{2x-7}{(x+2)(2x-5)}$</p> <p>or SC1 for numerator of $2x-7$ in final answer</p>
24	<p>15</p> $\frac{x+4}{x+1}$ <p>final answer</p>	4	<p>B1 for $(x-4)(x+4)$ and</p> <p>B2 for $(x-4)(x+1)$</p> <p>or</p> <p>SC1 for $(x+a)(x+b)$ where $a+b = -3$ or $ab = -4$</p>
25	<p>11 (a)</p> $\frac{3x}{2}$ <p>oe final answer</p>	1	
	<p>(b)</p> $\frac{x^2 + 2}{x}$ <p>oe final answer</p>	1	

26	22	$\frac{1}{2-5w}$ final answer nfw	4	B1 for $2(2+5w)$ B1 for $2(4-25w^2)$ B1 for $[2](2+5w)(2-5w)$ ALT method B3 for $\frac{4+10w}{(4+10w)(2-5w)}$ or B2 for $(4+10w)(2-5w)$
27	7	$\frac{x^2+2y^2}{xy}$ or $\frac{x}{y} + \frac{2y}{x}$ final answer	2	B1 for $xy(x^2+2y^2)$ or M1 for $\frac{x^2y+2y^3}{xy^2}$ or $\frac{x^3+2xy^2}{x^2y}$
28	8	$\frac{pt-2t-3p}{pt}$ final answer	2	B1 for $pt-2t-3p$ or $1-\frac{2t+3p}{pt}$
29	23	$\frac{7n}{2t+3m}$ final answer	4	M1 for $7n(6p-1)$ seen and M2 for $(2t+3m)(6p-1)$ seen or M1 for $2t(6p-1)+3m(6p-1)$ or $6p(2t+3m)-1(2t+3m)$
30	26	$\frac{x-2}{u+1}$ oe final answer	4	B2 for $(x-2)(u-1)$ or B1 for $u(x-2)-(x-2)$ or $x(u-1)-2(u-1)$ B1 for $(u-1)(u+1)$