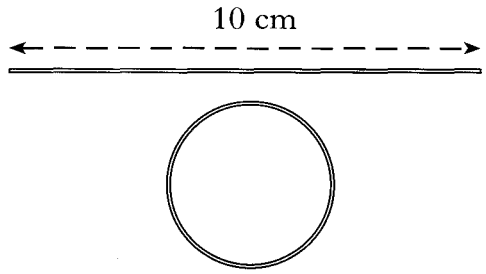
Algebraic Fractions

2008 P1	**5.** Express as a single fraction in its simplest form $\frac{1}{p}+\frac{2}{(p+5)}$.	2	
Ans	$\frac{3p+5}{p(p+5)}$		
2006 P1	**5.** (*a*) Factorise $4x^2-y^2$.	1	
	(*b*) Hence simplify $\frac{4x^2-y^2}{6x+3y}$.	2	
Ans	*(a) (2x - y)(2x + y)* (*b*) $\frac{2x-y}{3}$		
2005 P1	**6.** Solve the equation $\frac{2}{x}+1=6$.	3	
Ans	$\frac{2}{5}$		
2004 P1	**4.** Simplify $\frac{3}{m}+\frac{4}{(m+1)}$	3	
Ans	**4.** $\frac{7m+3}{m(m+1)}$		

2004 P1	**12.** A piece of gold wire 10 centimetres long is made into a circle.  The circumference of the circle is equal to the length of the wire. Show that the area of the circle is **exactly** $\frac{25}{\pi}$ square centimetres.		4
Ans	Proof.		
2003 P2	**11.** (*a*) A driver travels from A to B, a distance of x kilometres, at a constant speed of 75 kilometres per hour. Find the time taken for this journey in terms of x.	1	
	(*b*) The time for the journey from B to A is $\frac{x}{50}$ hours. Hence calculate the driver's average speed for the whole journey.		4
Ans	**11.** (*a*) $\frac{x}{75}$ hours (*b*) 60 km/h		
2002 P1	**5.** (*a*) Factorise $p^2 - 4q^2$.	1	
	(*b*) Hence simplify $\frac{p^2 - 4q^2}{3p + 6q}$.	2	
Ans	**5.** (*a*) $(p - 2q)(p + 2q)$ (*b*) $\frac{(p-2q)(p+2q)}{3(p+2q)} = \frac{p-2q}{3}$		

2001 P1	**6.** A is the point (a^2, a). T is the point (t^2, t), $a \neq t$ Find the gradient of the line AT. Give your answer in its simplest form.	3	
Ans	$\frac{1}{t+a}$		
2000 P1	**4.** (*a*) Factorise $x^2 - 16$. (*b*) Express $\frac{5(2x-3)}{4x^2-9}$ in its simplest form.	1 2	
Ans	**4.** (*a*) $(x-4)(x+4)$ (*b*) $\frac{5(2x-3)}{(2x-3)(2x+3)} = \frac{5}{2x+3}$		