Question	Scheme	Marks	AOs
14(a)	$u = 1+\sin^2 x \Rightarrow \dfrac{\mathrm{d}u}{\mathrm{d}x} = 2\sin x\cos x$	B1	1.1b
	$\displaystyle\int \frac{8\tan x}{1+\sin^2 x}\mathrm{d}x = \int \frac{8\tan x}{u}\frac{\mathrm{d}u}{2\sin x\cos x}$	M1	2.1
	$\displaystyle= \int \frac{4}{u\cos^2 x}\mathrm{d}u = \int \frac{4}{u\left(1-\sin^2 x\right)}\mathrm{d}u = \int \frac{4}{u\left(1-(u-1)\right)}\mathrm{d}u$	M1	3.1a
	$\displaystyle= \int \frac{4}{u(2-u)}\mathrm{d}u *$	A1*	2.1
	$p = 1$ and $q = \dfrac{5}{4}$	B1	2.2a
		(5)	
(b)	$\dfrac{4}{u(2-u)} \equiv \dfrac{a}{u}+\dfrac{b}{2-u} \Rightarrow a = .., b = ...$	M1	2.1
	$\dfrac{4}{u(2-u)} \equiv \dfrac{2}{u}+\dfrac{2}{2-u}$	A1	1.1b
	$\displaystyle= \int \frac{4}{u(2-u)}\mathrm{d}u = 2\ln u - 2\ln(2-u)(+c)$	dM1 A1ft	3.1a 1.1b
	$\displaystyle= \int_1^{\frac{5}{4}} \frac{4}{u(2-u)}\mathrm{d}u = \left[2\ln u - 2\ln(2-u)\right]_1^{\frac{5}{4}} = 2\ln\frac{5}{4} - 2\ln\left(2-\frac{5}{4}\right) - (0)$	M1	1.1b
	$= \ln\dfrac{25}{9}$	A1	2.1
		(6)	
			(11 marks)