Question			Answer	Marks	AO	Guidance	
8	(a)		$y = 1 - x + \frac{6}{\sqrt{x}}$ leading to $y' = ...$	M1	2.1	Derivative of the form $-1 + kx^{-\frac{3}{2}}$	
			$y' = -1 - 3x^{-\frac{3}{2}}$	A1	1.1		
			At $x = 1, m_T = -4 \Rightarrow m_N = \frac{1}{4}$	M1*	1.2	Substitutes x = 1 into their derivative and correct use of $mm' = -1$	
			$y - 6 = \frac{1}{4}(x - 1)$	M1dep*	1.1	Use of $y - 6 = m_N(x - 1)$	
			$-x + 4y = 23$	A1	1.1	oe	
				[5]			
8	(b)		$x = 4, y = 1 - 4 + \frac{6}{\sqrt{4}} = 0$	B1	1.1	**AG –** must show sufficient working and must see = 0	
				[1]			
8	(c)		**DR**				
			$\int \left(1 - x + \frac{6}{\sqrt{x}}\right) dx =$	M1*	2.1	Attempt to integrate with at least two terms correct	
			$= x - \frac{1}{2}x^2 + 12\sqrt{x}$	A1	1.1		
			$\left(4 - \frac{1}{2}\left(4^2\right) + 12\sqrt{4}\right) - \left(1 - \frac{1}{2} + 12\right) = \ldots$	M1dep*	1.1	Use of correct limits (1 and 4)	If correct, then expect to see 7.5
			$\frac{1}{2}\left(\frac{23}{4} + 6\right)(1)$	B1ft	3.1a	Any correct numerical expression for the area of the trapezium between x = 0 and x = 1 using their result from **(a)**	
			$\frac{107}{8}$	A1	2.2a	Or exact equivalent (e.g. 13.375)	
				[5]			