Question number	Scheme	Marks
6 (a)	$\frac{dy}{dx} = \frac{2}{\sqrt{x}}$	M1
	When $x = 9$ $\frac{dy}{dx} = \frac{2}{3}$	A1
	$y - 12 = \frac{2}{3}(x - 9)$	M1
	When $y = 0$ $-12 = \frac{2}{3}(x - 9)$	M1
	$x = -9$ So $(-9, 0)$	A1 (5)
(b)	Gradient of Normal: $-\frac{3}{2}$	M1
	$y - 12 = -\frac{3}{2}(x - 9)$	M1
	When $y = 0$ $-12 = -\frac{3}{2}(x - 9)$	M1
	$x = 17$ So $(17, 0)$	A1 (4)
(c)	$\frac{1}{2} \times 12 \times 26 = 156$	M1 A1 (2)
		Total 11 marks

Part	Mark	Notes
(a)	**M1**	For an attempt to differentiate y wrt x. Accept $\frac{\mathrm{d}y}{\mathrm{d}x}=2x^{-\frac{1}{2}}$ Allow as a minimum $\frac{\mathrm{d}y}{\mathrm{d}x}=kx^{-\frac{1}{2}}$ where k is a constant $\neq 0$
	A1	For $\frac{\mathrm{d}y}{\mathrm{d}x}=\frac{2}{3}$
	M1	For a complete method to find the equation of a straight line. If they use $y=mx+c$ then they must reach a value for c for this mark. Accept the equation of the line with their value of $\frac{\mathrm{d}y}{\mathrm{d}x}$ using the given coordinates.
	M1	For substitution of $y = 0$ to find a value for x
	A1	For $(-9, 0)$
(b)	**M1**	For gradient of Normal: $-\frac{3}{2}$ Which is the negative reciprocal of their gradient obtained in (a)
	M1	For a complete method to find the equation of a straight line with a gradient of $-\frac{3}{2}$ (ft their gradient of normal) If they use $y=mx+c$ then they must reach a value for c for this mark.
	M1	For substitution of $y = 0$ to find a value for x
	A1	For $(17, 0)$
(c)	**M1**	For any correct method for finding the area of a triangle. e.g., $A=\frac{1}{2}\times12\times('17'-'-9')=156$ OR $A=\frac{1}{2}\begin{bmatrix}9 & -9 & 17 & 9\\12 & 0 & 0 & 12\end{bmatrix}=\frac{1}{2}\left[(0+0+204)-(0+0-108)\right]=156$
	A1	For 156