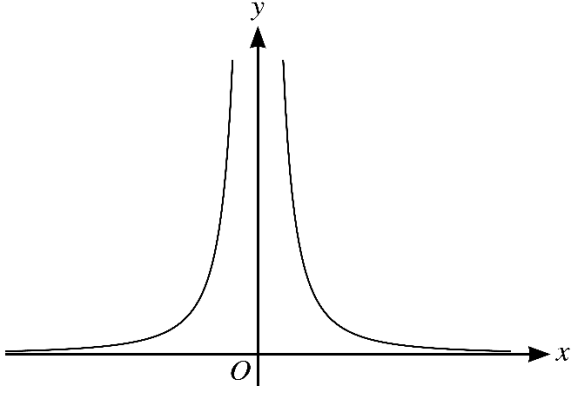
Question			Answer	Marks	AO	Guidance	
5	(a)	(i)	$y = \frac{k}{x}$ The curve passes through the point $\left(1, -\frac{1}{2}\right)$ so $k = -\frac{1}{2}$ or $y = -\frac{1}{2x}$ $y = -\frac{1}{2x} \Rightarrow y' = \frac{1}{2x^2}$	**M1** **A1** **A1ft** **[3]**	**2.1** **1.1** **1.1**	Allow any letter, (except x, y) or value, for k Allow this mark for just $-\frac{1}{2x}$ oe Differentiating their f(x) correctly Need to see their value of k substituted	 Need to see $y' =$ or $f'(x) =$ or $\frac{dy}{dx} =$
5	(a)	(ii)	 	**B1ft** **[1]**	**1.1**	Excellent curve in 1st and 2nd quadrants only: • Correct shape, symmetrical, not touching axis • Asymptote clearly the axes • Not finite Allow slight movement away from asymptote at one end but not more	Follow through provided their curve is of the form $y = \frac{k}{x^2}$ where $k > 0$
5	(b)		C has no stationary points as indicated by the fact that the curve for the gradient function (seen in part (a)(ii)) does not intersect (or touch) the x-axis	**B1** **[1]**	**2.4**	Curve in **5(a)(ii)** must be of the form $y = \frac{k}{x^2}$	Need to see idea of intersecting, touching, crossing etc x-axis **only**

Question			Answer	Marks	AO	Guidance	
5	(c)		$y = -\frac{1}{2(x+2)}$	M1 A1 [2]	1.1 2.2a	Their $y = f(x)$ with x replaced by $x \pm 2$ oe (e.g., $y = -\frac{1}{2x+4}$)	May be $y = \frac{k}{x}$ Must have $y =$ …