Question Number	Scheme	Notes	Marks
2(a)	$x=-\frac{4}{3}$	$x=-\frac{4}{3}$ or any equivalent **equation**. Allow $x=\pm\frac{4}{3}$	B1
			(1)
(b)(i) **Way 1**	$\frac{a}{e}=\frac{4}{3}$ $b^2=a^2\left(e^2-1\right)\Rightarrow 5=a^2\left(\frac{9a^2}{16}-1\right)$	Uses $\frac{a}{e}=\pm\frac{4}{3}$ oe and a correct eccentricity formula and obtains an equation in a. Condone replacing b^2 with 25 if equation is otherwise correct	M1
	$9a^4-16a^2-80=0$ $\Rightarrow\left(9a^2+20\right)\left(a^2-4\right)=0\Rightarrow a^2=...$	Solves a 3TQ in a^2 (or equation that would lead to a 3TQ) to find a positive real root (usual rules – but if no working seen they must obtain one positive real value of a^2 or a correct to 3 sf which is consistent with their equation). Do not award if confusion with variable e.g., $"\left(9a^2+20\right)\left(a^2-4\right)=0\Rightarrow a=4"$ **Requires previous M mark.**	**d**M1
	$a=2$	Not $a=\pm 2$ unless negative rejected	A1
			(3)
Way 2	$\frac{a}{e}=\frac{4}{3}$ $b^2=a^2\left(e^2-1\right)\Rightarrow 5=\left(\frac{4e}{3}\right)^2\left(e^2-1\right)$	Uses $\frac{a}{e}=\pm\frac{4}{3}$ oe and a correct eccentricity formula and obtains an equation in e. Condone replacing b^2 with 25 if equation is otherwise correct	M1
	$16e^4-16e^2-45=0$ $\Rightarrow\left(4e^2-9\right)\left(4e^2+5\right)=0\Rightarrow e^2=...$	Solves a 3TQ in e^2 (or equation that would lead to a 3TQ) to find a positive real root (usual rules – but if no working seen they must obtain one positive real value of e^2 or e correct to 3 sf which is consistent with their equation). Do not award if confusion with variable e.g., $"\left(4e^2-9\right)\left(4e^2+5\right)=0\Rightarrow e=\frac{9}{4}"$ **Requires previous M mark.**	**d**M1
	$\left(e=\frac{3}{2}\Rightarrow\right)\quad a=2$	Not $a=\pm 2$ unless negative rejected but condone sight of $"e=\pm\frac{3}{2}"$ or $"e=-\frac{3}{2}"$	A1
			(3)

Question Number	Scheme	Notes	Marks
2(b)(ii)	$e=\frac{3}{2} \Rightarrow ae=\frac{3}{2}\times 2$ or $ae=\frac{3a^2}{4}=\frac{3}{4}\times 4$ or $ae=c=\sqrt{a^2+b^2}=\sqrt{2^2+5}$	Uses a correct method to obtain a numerical expression for ae oe with their values of a, e, a^2, b^2 etc. however obtained. Condone use of a negative e or a	M1
	Foci are $(\pm 3, 0)$	Both correct foci as coordinates	A1
	Allow "$\frac{a}{e}=\frac{4}{3} \Rightarrow a=4,\ e=3$" to access the last M mark only in (b) for $(\pm 12, 0)$ provided the values of both a and e are clearly seen beforehand		**(2)**
			Total 6
	Note that it is possible to answer (ii) before (i) – e.g., Let foci be $(\pm c,\ 0)$ $a^2e^2=c^2=b^2+a^2=5+a^2$ and $\frac{a}{e}=\frac{a^2}{ae}=\frac{a^2}{c}=\frac{4}{3} \Rightarrow a^2=\frac{4}{3}c$ $\Rightarrow c^2=5+\frac{4}{3}c$ ((i) M1: Uses correct formulae to form an equation in c – condone b^2 replaced with 25 as with main scheme) $\Rightarrow 3c^2-4c-15=0 \Rightarrow (3c+5)(c-3)=0 \Rightarrow c=3$ ((i) **d**M1: Solves 3TQ to find positive real root) $\Rightarrow (\pm 3,\ 0)$ ((i)A1: Correct foci as coordinates) $a=\sqrt{\frac{4}{3}\times 3}$ ((ii) M1: Correct method for a) $a = 2$ ((ii) A1: Correct value)		