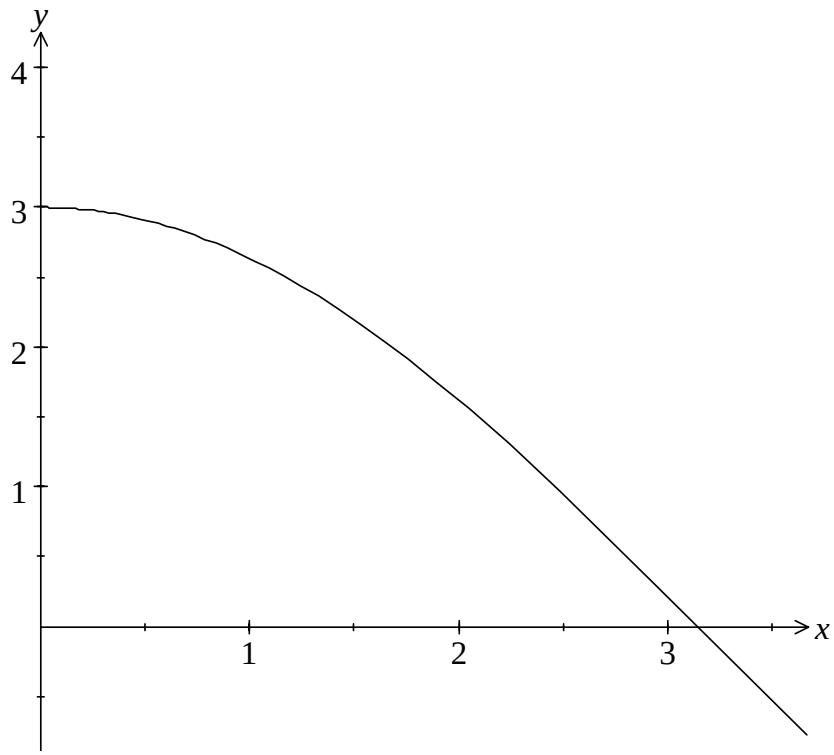
6 (a)

x	0	0.5	1	1.5	2	2.5	3	3.5
y	3	**2.91**	2.63	2.20	**1.62**	0.95	0.21	**-0.53**

B2, 1 (3 correct, 2 correct)

(b)



B1 plot points

B1 curve

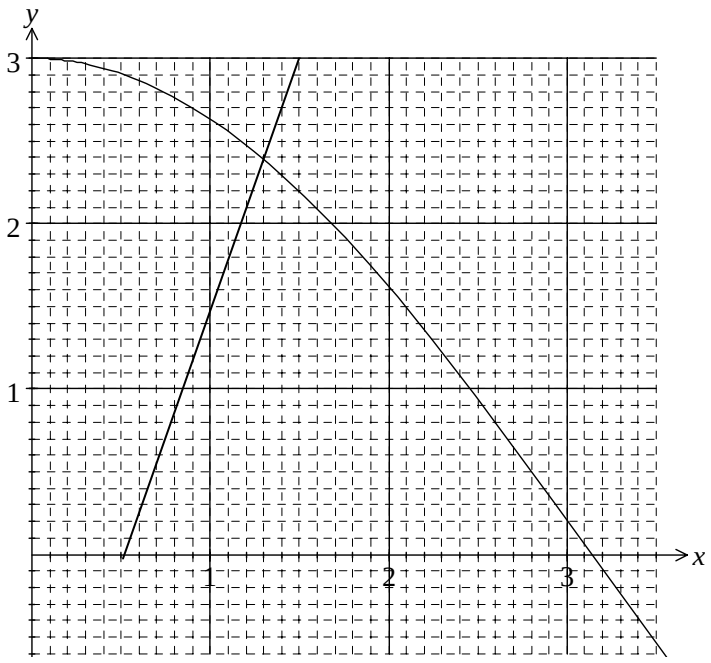
(c) $2x - 1 = 2\cos(x/2)$

$3x - 1½ = 3\cos(x/2)$

$y = 3x - 1½$

M1 rearrange

A1



M1 draw their line

A1 1.2, 1.3 or 1.4

$x = 1.3$

8

8	(a) $k = \alpha/\beta \times \beta/\alpha = 1$	B1
	(b) $\alpha\beta = 15$ and $\alpha + \beta = -m$	M1 A1
	$-h = \alpha/\beta + \beta/\alpha$	M1
	$= \dfrac{\alpha^2 + \beta^2}{\alpha\beta}$	M1
	$= \dfrac{(\alpha+\beta)^2 - 2\alpha\beta}{\beta\alpha}$	M1
	$\Rightarrow\ h = \dfrac{30 - m^2}{15}$	A1 oe
	(c) $\alpha\beta = 15 \Rightarrow \alpha(2\alpha + 1) = 15$	M1
	$2\alpha^2 + \alpha - 15 = 0$	
	$(2\alpha - 5)(\alpha + 3) = 0$	M1
	$\alpha = 2\frac{1}{2}$ or $\alpha = -3$	A1
	(d) $\beta = 2 \times 2\frac{1}{2} + 1 = 6$ or $\beta = 2 \times -3 + 1 = -5$	M1
	$m = -(\alpha + \beta) = -(2\frac{1}{2} + 6)$ or $-(-3 - 5)$	M1
	$m = -8\frac{1}{2}$ or 8	A1
		13
9	(a) $BD^2 = 5^2 + 6^2 = 61$, $BC^2 = 8^2 + 6^2 = 100$, $CD^2 = 8^2 + 5^2 = 89$	M1 A2, 1, 0
	$100 = 61 + 89 - 2\sqrt{61}\sqrt{89}\cos BDC$	M1
	$\cos BDC = 25/\sqrt{(61 \times 89)}$	A1
	$= 0.3393$	
	$\angle BDC = 70.2^o$	A1
	(b) Area $BDC = \frac{1}{2}\sqrt{61}\sqrt{89}\sin 70.2^o$	M1 A1ft
	$= 34.7\ \text{cm}^2$ (3sf)	A1 allow 34.6
	(c) Area $DAC = \frac{1}{2} \times 5 \times 8 = 20$	B1
	(d) $20 = \frac{1}{2} \times \sqrt{89} \times AE \Rightarrow AE = 40/\sqrt{89}$	M1 A1
	(e) Angle is $\angle BEA$	M1 identify angle
	$\tan BEA = 6/AE = 6\sqrt{89}/40$	M1 A1ft
	$= 1.415$	
	$\Rightarrow\ \angle BEA = 54.8^o$	A1
		16