Question	Answer	Marks	Partial Marks
1	$[y=]\frac{6+\sqrt{6}}{3+\sqrt{6}}\times\frac{3-\sqrt{6}}{3-\sqrt{6}}$ oe, soi	**M1**	
	Correctly multiplies out correct expression: $[y=]\frac{18-6\sqrt{6}+3\sqrt{6}-6}{9-6}$ oe	**M1**	
	$[y=]\ 4-\sqrt{6}$	**A1**	not from wrong working
2	$f(x)=-2x+5$ or $g(x)=x-1$ soi	**B1**	
	Uses correct f(x) and g(x) to find the critical value 2 soi	**B1**	
	Valid method to find other CV e.g. $2x-5*x-1$ oe seen, where * is = or any inequality sign	**M1**	**FT** *their* equations of form $y = mx + c$, for non-zero m and c; **dep** on first **B1**
	Correct critical value 4 soi	**A1**	
	$2 \leqslant x \leqslant 4$ mark final answer	**A1**	
	Alternative method 1 $f(x) = 2x - 5$ or $g(x) = x - 1$ soi	**(B1)**	
	Uses correct f(x) and g(x) to find the critical value 4 soi	**(B1)**	
	Valid method to find other CV e.g. $-2x+5*x-1$ oe seen, where * is = or any inequality sign	**(M1)**	**FT** *their* equations of form $y = mx + c$, for non-zero m and c; **dep** on first **B1**
	Correct critical value 2 soi	**(A1)**	
	$2 \leqslant x \leqslant 4$ mark final answer	**(A1)**	
	Alternative method 2 f(x) = –2x + 5 or 2x – 5 OR g(x) = x – 1 soi	**(B1)**	
	Squares, equates, simplifies correct f(x) and g(x): $3x^2-18x+24[*0]$	**(B1)**	where * is = or any inequality sign
	Attempts to solve or factorise	**(M1)**	FT *their* 3-term quadratic from $(ax + b)^2 = (cx + d)^2$ for non-zero a, b, c and d; **dep** on first **B1**
	Correct critical values 2, 4	**(A1)**	
	$2 \leqslant x \leqslant 4$ mark final answer	**(A1)**	

Question	Answer	Marks	Partial Marks
3	Uses $b^2 - 4ac$ oe: $(k+5)^2 - 4k(-4)$ [* 0, where * could be = or any inequality sign]	**M1**	
	Forms a correct 3-term expression: $k^2 + 26k + 25$	**A1**	
	Factorises $k^2 + 26k + 25$ or solves $k^2 + 26k + 25 = 0$ oe	**M1**	**dep** on first **M1**, **FT** *their* 3-term quadratic in k
	Correct critical values $-1, \quad -25$ soi	**A1**	
	$k \leqslant -25$, $k \geqslant -1$	**A1**	mark final answer
4	Substitutes $y = 4$ and rearranges to correct 3-term quadratic $3x^2 - 2x - 1 = 0$ oe	**B1**	
	Solves *their* 3-term quadratic in x as far as $x = \ldots$	**M1**	
	$\frac{\mathrm{d}y}{\mathrm{d}x} = -2x^{-2} - 2x^{-3}$ oe, isw	**B1**	
	$\frac{0.01}{\delta x} = their\left(\left.\frac{\mathrm{d}y}{\mathrm{d}x}\right\|_{x=\ their\ 1}\right)$ or better	**M1**	**FT** *their* derivative and *their x,* providing *their* $x > 0$ and *their* $x \neq 4$ unless 4 is a genuine solution of *their* 3-term quadratic; must see a power decrease for attempted differentiation in two out of the three terms
	$-\frac{1}{400}$ oe as the only solution	**A1**	**dep** on all previous marks being awarded