Question	Answer	Marks	Guidance
1	$2x^2-8x+3x-12 * 3x^2-3x+4x-4$	**B1**	Correctly expands all brackets * is any inequality or equals sign
	$[0*]\ x^2+6x+8$	**B1**	Collects terms to correct 3-term quadratic in solvable form
	$[0*](x+2)(x+4)$	**M1**	Factorises or solves *their* 3-term quadratic
	-4 and -2	**A1**	Correct critical values
	$-4 < x < -2$ mark final answer	**A1**	
2	$\frac{dy}{dx}=2ax-5$	**B1**	
	$2a\times 2-5=7$ oe	**M1**	**FT** *their* $\left(\frac{dy}{dx}\Big\vert_{x=2}\right)=7$
	$a = 3$	**A1**	
	$7\times 2+b=$ *their* 4 or $b=2-4\times$ *their* a	**M1**	**dep** on previous **M1** where *their* 4 is an attempt to evaluate $y=ax^2-5x+2$ using $x = 2$ and *their a*
	$b = -10$	**A1**	
	Alternative		
	$(-12)^2-4a(2-b)=0$ oe	**(B1)**	for use of discriminant on $ax^2-12x+2-b=0$
	$144-8a+4a(4a-22)=0$ oe or $144-(b+22)(2-b)=0$ oe	**(M1)**	Condone one sign or arithmetic error
	$a^2-6a+9\ [=0]$ oe or $b^2+20b+100\ [=0]$ oe	**(A1)**	for correct 3-term quadratic in solvable form
	$a=3$ and $b=-10$	**(A2)**	**A1** for $a=3$ or $b=-10$

Question	Answer	Marks	Guidance
3	$\lg\left((2x-1)(x+2)\right)=\lg\frac{100}{4}$ oe or $10^2=4(2x-1)(x+2)$ oe	**M2**	**M1** for one log law correctly applied within a correct equation e.g. $\lg 4(2x-1)(x+2) \quad =2$
	$2x^2+3x-27[=0]$	**A1**	Collects terms to correct 3-term quadratic in solvable form
	$(2x+9)(x-3)[=0]$	**M1**	**dep** on at least **M1** previously awarded Factorises *their* $2x^2+3x-27$ or solves *their* $2x^2+3x-27=0$
	$x = 3$ indicated as only valid solution	**A1**	nfww
4(a)	$2k+6=8-16+6k+2$ oe	**M1**	For equating line to curve and substituting $x = 2$, or vice versa
	$k = 3$	**A1**	
4(b)	$x^3-4x^2+(2\times \textit{their}\, k)x-4 \quad [=0]$ or $x^3-4x^2+6x-4 \quad [=0]$	**M1**	**FT** *their k* in correct cubic
	x^2-2x+2	**A2**	Correct quadratic factor from correct cubic **A1** for a quadratic factor with two terms correct, from correct cubic
	$(-2)^2-4(1)(2) < 0$ oe or $4 - 8 < 0$ oe [and so $x = 2$ is the only solution]	**A1**	Uses discriminant correctly on the correct quadratic factor