Question Number	Scheme	Marks
8(a)	$y = 3x + "c"$ or $y = "m"x - 12'$	M1
	$y = 3x - 12$	A1
		(2)
(b)	$k = 10$	B1
		(1)
(c)	E.g. $y = A(x-4)(x-10)$ or $y = C(x-7)^2 - 18$	M1
	E.g. $-18 = A(7-4)(7-10) \Rightarrow A = ...$ Or $0 = C(4-7)^2 - 18 \Rightarrow C = ...$	dM1
	$y = 2(x-4)(x-10)$, $y = 2(x-7)^2 - 18$ o.e.	A1
		(3)
(d)	Two of $y > 3x - 12$, $y < 2(x-4)(x-10)$, $x > 0$, $x < 4$	M1
	E.g. $3x - 12 < y < 2(x-4)(x-10)$, $0 < x < 4$	A1
		(2)
		(8 marks)

Question Number	Scheme	Marks
11a	$2(x \pm ...)^2$	B1
	$...(x \pm 3)^2 ...$	M1
	$2(x-3)^2 - 4$	A1
		(3)
b	$(3, -4)$	B1ft
		(1)
c	$m = \frac{28 - -4}{-1-3}$ $(= -8)$	M1
	$y - 28 = -8(x+1)$	dM1
	$y = -8x + 20$	A1
		(3)
d	$y \leqslant "-8x+20"$ and $y \geqslant 2x^2 - 12x + 14$ (or $y \geqslant "2(x-3)^2 - 4"$)	B1ftB1ft
	$y \leqslant -8x + 20$ $y \geqslant 2x^2 - 12x + 14$ $y \geqslant 0,\ x \geqslant 0$	B1cso
		(3)
		(10 marks)

Question Number	Scheme	Marks
5 (a)	$9x^3-10x^2+x=x\left(9x^2-10x+1\right)=x(ax\pm1)(bx\pm1)$ with $ab=9$	M1
	$=x(9x-1)(x-1)$	A1
		(2)
(b)	States or implies that $x=3^y$ AND sets = to their 1 or $\frac{1}{9}$	M1
	Solves their $3^y="1"$ or $3^y="\frac{1}{9}"$	dM1
	$y=0,-2$	A1
		(3)
		(5 marks)

Question Number	Scheme	Marks
8.(a)(i)	$4+12x-3x^2=a\pm3(x+c)^2$ or $a+b(x\pm2)^2$	M1
	Two of $16-3(x-2)^2$ or two of $a=16, b=-3, c=-2$	A1
	$16-3(x-2)^2$	A1
(ii)	Coordinates $M=(2,16)$	B1ft B1ft
		(5)
(b)	States or implies that l_2 has equation $y="8"x+k$	M1
	Sets $4+12x-3x^2="8x"+k$ and proceeds to 3TQ	dM1
	Correct 3TQ $3x^2-4x+k-4=0$	A1
	Attempts to use $b^2-4ac=0$ to find k	ddM1
	$k=\frac{16}{3}\Rightarrow y=8x+\frac{16}{3}$	A1
		(5)
		(10 marks)