Question	Scheme	Marks	AOs
7 (a)	(i) States 10 or $(10,0)$	B1	2.2a
	(ii) Uses $(4,24)$ in an equation of the form $y=k(x+2)(x-10)\Rightarrow k=...$	M1	3.1a
	$\mathrm{f}(x)=-\frac{2}{3}(x+2)(x-10)$	A1	1.1b
		(3)	
(b)	Attempts gradient of l = $\frac{0--12}{-2-4}=(-2)$	M1	1.1b
	Correct method for equation of l $y+12=-2(x-4)$	M1	1.1b
	$y=-2x-4$	A1	1.1b
		(3)	
(c)	Identifies $x=4$ as one of the boundaries	B1	1.1b
	Achieves two of the three inequalities defining R. $y>"-2x-4"$, $y<"-\frac{2}{3}(x+2)(x-10)"$, $x>4$	M1	1.1b
	$\left\{(x,y):-2x-4<y<-\frac{2}{3}(x+2)(x-10), x>4\right\}$ o.e	A1ft	2.1
		(3)	
		(9 marks)	
Notes:			

(a)(i)

B1: Deduces the point where C cuts the positive x - axis. Allow 10 or $(10,0)$

(a)(ii)

M1: For a full attempt to find f (x).

Score for using $(4,24)$ in an equation of the form $y=k(x+2)(x-10)\Rightarrow k=...$

Score for using $(-2,0)$ or $(10,0)$ in an equation of the form $y=24-k(x-4)^2\Rightarrow k=...$

Score for using $(-2,0),(4,24)$ and $\left.\frac{\mathrm{d}y}{\mathrm{d}x}\right|_{x=4}=0$ in an equation of the form $y=ax^2+bx+c\Rightarrow a,b,c=...$

A1: $\mathrm{f}(x)=-\frac{2}{3}(x+2)(x-10)$ or exact equivalent. E.g $y=24-\frac{2}{3}(x-4)^2$

(b)

M1: Attempts gradient of l = $\frac{0--12}{-2-4}=(-2)$

M1: Correct method for equation of l $y+12="-2"(x-4)$

A1: $y=-2x-4$

(c)

B1: Identifies $x = 4$ as one of the boundaries. You may not see an = so allow $x \ldots 4$

M1: Achieves two of the three inequalities defining *R*. Allow consistent use of $\leqslant$ for < and $\geqslant$ for >

A1ft: Correct use of inequalities to fully define *R*. Boundary lines may be included so allow

E.g $y \leqslant -\frac{2}{3}(x+2)(x-10),\ y \geqslant -2x-4,\ 4 \leqslant x \leqslant 13$