Q	Marking instructions	AO	Mark	Typical solution
15(a)	Forms expression of the correct form for the gradient of the line AB condone sign error	AO1.1a	M1	Gradient of AB $=\frac{\left(-4+h\right)^3-48\left(-4+h\right)-\left(\left(-4\right)^3-48\left(-4\right)\right)}{h}$ $=\frac{h^3-12h^2+48h-64-48h+192-128}{h}$ $=\frac{h^3-12h^2}{h}$ $=h^2-12h$
	Obtains correct expansion of $\left(-4+h\right)^3$	AO1.1b	B1	
	Obtains correct expansion of numerator	AO1.1b	A1	
	Simplifies numerator and shows given result	AO2.1	R1	
15(b)	Explains that as $h\to 0$ the gradient of the line AB $\to$ the gradient of the curve or tangent to the curve Or gradient of curve is given by $\lim_{h\to 0} h^2-12h$ Must not use $h=0$	AO2.4	E1	The gradient of the curve is given by $\lim_{h\to 0} h^2-12h$
	Explains that $\lim_{h\to 0} h^2-12h=0$ therefore A must be a stationary point	AO2.4	E1	As $h\to 0$, $h^2-12h\to 0$ therefore A must be a stationary point
	Total		**6**	