

Q	Marking Instructions	AO	Marks	Typical Solution
4a	Sketches graph recalling correct u shape	AO1.2	B1	
	Deduces correct relative positions of intersections with axes and with $k$ labelled	AO2.2a	B1	
b	Shows evidence of discriminant being used or completing the square to find vertex	AO1.1a	M1	For distinct roots $b^2 - 4ac > 0$ $(-6)^2 - 4 \times 1 \times k > 0$ $36 - 4k > 0$ $k < 9$ $k$ is the y-intercept and for positive roots the intercept must be positive $0 < k < 9$
	Obtains $k < 9$ Condone $k \leq 9$	AO1.1b	A1	
	Explains that positive roots and the u shape of the graph (OE) mean the graph must cross the y-axis above 0 or $k > 0$ .	AO2.4	E1	
	States correct range of values for $k$	AO2.2a	R1	
<b>Total</b>			<b>6</b>	