Question Number	Scheme	Marks
1(a)	$(u_2 =)\ k-\frac{8}{1}$ and $(u_3 =)\ k-\frac{8}{k-8}\quad\left(=\frac{k^2-8k-8}{k-8}\right)$ oe	M1A1 **(2)**
(b)	$u_3 = 6 \Rightarrow k-\frac{8}{k-8}=6 \Rightarrow k^2-14k+40=0$ $(k-4)(k-10)=0 \Rightarrow k=...$ or $(k=)\ \frac{14\pm\sqrt{14^2-4\times1\times40}}{2\times1}$ $(k=)\ 4,\ 10$	M1 dM1 A1 **(3)**
		(5 marks)

Mark (a) and (b) together

(a)

M1: Uses the given relation correctly **at least once** so score for sight of $k-\frac{8}{1}$ o.e. or condone a correct follow through expression for u_3 from an incorrect u_2

The expression does not need to be simplified.

A1: Both expressions correct which may be unsimplified or equivalent e.g. $k-\frac{8}{1}$ and $k-\frac{8}{k-\frac{8}{1}}$ scores

M1A1. Isw. Condone slips in the notation used for these terms or may not be seen at all.

(b)

M1: Sets their third term equal to 6 and proceeds to a 3TQ in *k*. You do not need to be concerned by the mechanics of the rearrangement

dM1:Solves their 3TQ in *k* via factorisation, the formula or completing the square (usual rules apply).

They are not allowed to just state the roots (dM0A0) and if solved by factorisation then the factorised version of the quadratic must match the quadratic on the previous line.

Dependent on the previous method mark.

A1: Correct values and no others