Question	Scheme	Marks	AOs
6 (a)	$(1+kx)^{10} = 1 + \binom{10}{1}(kx)^1 + \binom{10}{2}(kx)^2 + \binom{10}{3}(kx)^3 \ldots$	M1 A1	1.1b 1.1b
	$= 1 + 10kx + 45k^2x^2 + 120k^3x^3 \ldots$	A1	1.1b
		(3)	
(b)	Sets $120k^3 = 3 \times 10k$	B1	1.2
	$4k^2 = 1 \Rightarrow k = \ldots$	M1	1.1b
	$k = \pm\dfrac{1}{2}$	A1	1.1b
		(3)	
		(6 marks)	

(a)

M1: An attempt at the binomial expansion. This may be awarded for either the second or third term or fourth term. The coefficients may be of the form $^{10}C_1$, $\binom{10}{2}$ etc or eg $\dfrac{10 \times 9 \times 8}{3!}$

A1: A correct unsimplified binomial expansion. The coefficients must be numerical so cannot be of the form $^{10}C_1$, $\binom{10}{2}$. Coefficients of the form $\dfrac{10 \times 9 \times 8}{3!}$ are acceptable for this mark.

The bracketing must be correct on $(kx)^2$ but allow recovery

A1: $1 + 10kx + 45k^2x^2 + 120k^3x^3 \ldots$ or $1 + 10(kx) + 45(kx)^2 + 120(kx)^3 \ldots$
Allow if written as a list.

(b)

B1: Sets their $120k^3 = 3 \times$ their $10k$ (Seen or implied)
For candidates who haven't cubed allow $120k = 3 \times$ their $10k$

If they write $120k^3x^3 = 3 \times$ their $10kx$ only allow recovery of this mark if x disappears afterwards.

M1: Solves a cubic of the form $Ak^3 = Bk$ by factorising out/cancelling the k and proceeding correctly to at least one value for k. Usually $k = \sqrt{\dfrac{B}{A}}$

A1: $k = \pm\dfrac{1}{2}$ o.e ignoring any reference to 0