

Question		Answer	Marks	AO	Guidance		
5	(a)	Obtain $1 + \frac{1}{3}px$	B1	1.1	Must be simplified	Attempt the x^2 term at least in the form ${}^6C_2kx^2$	
		$(\frac{1}{2})(\frac{1}{3})(\frac{-2}{3})(px)^2$	M1	1.1			
		Obtain $1 + \frac{1}{3}px - \frac{1}{9}p^2x^2$	A1	1.1			
		[3]					
5	(b)	$(1+qx)(1+\frac{1}{3}px-\frac{1}{9}p^2x^2)$	M1	3.1a	Obtain two equations in p and q and show evidence of substitution for p or q to obtain an equation in one variable	Expand $(1+qx)$ and their $1 + \frac{1}{3}px - \frac{1}{9}p^2x^2$ and compare coefficients	
		$=1 + (\frac{1}{3}p + q)x + (\frac{1}{3}pq - \frac{1}{9}p^2)x^2$					
		$\frac{1}{3}p + q = 1$ (*)	M1	3.1a			
		$\frac{1}{3}pq - \frac{1}{9}p^2 = -\frac{2}{9}$					
		$2p^2 - 3p - 2 = 0$	M1	1.1			Solve a 3 term quadratic equation in a single variable.
		$p = 2$ or $-\frac{1}{2}$	A1	1.1			Obtain any two values
$q = \frac{1}{3}$ or $\frac{7}{6}$	A1FT	1.1	Obtain all 4 values, or FT their p and (*)				
		[5]			Or $18q^2 - 27q + 7 = 0$ Solve their quadratic with indication of correct pairings		