Question Number	Scheme	Marks
1	$(2+5x)^{-2}$	
(a)	$(2+5x)^{-2}=\frac{1}{4}\left(1+\frac{5}{2}x\right)^{-2}$	B1
	$\left(1+\frac{5}{2}x\right)^{-2}=1+(-2)\times\left(\frac{5}{2}x\right)+\frac{(-2)\times(-3)}{2}\times\left(\frac{5}{2}x\right)^2+\frac{(-2)\times(-3)\times(-4)}{3!}\times\left(\frac{5}{2}x\right)^3$	M1A1
	$(2+5x)^{-2}=\frac{1}{4}-\frac{5}{4}x+\frac{75}{16}x^2-\frac{125}{8}x^3$	A1A1
		(5)
(b)	$\lvert x\rvert<\frac{2}{5}$	B1
		(1)
(c)	$\left(\frac{4}{2+5x}\right)^2\approx 4-20x+75x^2$ or $a=4, b=-20$ and $c=75$	B1ft
		(1)
		(7 marks)

(a) Note that B1M1A0A1A0 is a possible mark trait

B1: For taking out a common factor of $\frac{1}{4}$ (or 0.25 or accept 2^{-2}) so score for $\frac{1}{4}(1+kx)^{-2}$ or $0.25(1+kx)^{-2}$. It cannot be for just $\frac{1}{4}$ on its own

M1: Attempts the binomial expansion with index -2

Score for the correct binomial coefficient for the 3rd or 4th term with the correct power of *x*

Look for $\frac{(-2)\times(-3)}{2}\times(...x)^2$ oe or $\frac{(-2)\times(-3)\times(-4)}{3!}\times(...x)^3$ oe If no working is shown then the coefficient must be consistent with their *k*. Condone invisible or poor bracketing for this mark.

Do not allow notation such as $\binom{-2}{1}, \binom{-2}{2}$ unless interpreted correctly in further work.