Question Number	Scheme	Marks
1(a)	$27(3-5x)^{-2} = 27\times\frac{1}{9}\left(1-\frac{5}{3}x\right)^{-2}$ o.e. $3\times\left(1-\frac{5}{3}x\right)^{-2}$	B1
	$=(3)\left(1+(-2)\left(-\frac{5}{3}x\right)+\frac{(-2)(-3)}{2!}\left(-\frac{5}{3}x\right)^2+\frac{(-2)(-3)(-4)}{3!}\left(-\frac{5}{3}x\right)^3+...\right)$	M1, A1
	$=3+10x+25x^2+\frac{500}{9}x^3+...$	A1 **(4)**
(b)	$27(3+5x)^{-2} = 27(3+5x)^{-2} = 3-10x+25x^2-\frac{500}{9}x^3+...$	B1ft **(1)**
(c)	$27(3-x)^{-2} = 3+\frac{10}{5}x+\frac{25}{5^2}x^2+\frac{500}{9\times5^3}x^3 = 3+2x+x^2+\frac{4}{9}x^3+...$	M1A1 **(2)** **(7 marks)**
Alt(a)	$27(3-5x)^{-2} = 27\left(\begin{array}{l}3^{-2}+(-2)\times3^{-3}\times(-5x)+\frac{(-2)(-3)}{2}\times3^{-4}\times(-5x)^2\\+\frac{(-2)(-3)(-4)}{3!}(3)^{-5}(-5x)^3\end{array}\right)$	B1 M1
	$=27\left(\frac{1}{9}+\frac{10x}{27}+\frac{25x^2}{27}+\frac{500x^3}{243}+..\right)$	A1 A1
	$=3+10x+25x^2+\frac{500}{9}x^3+...$	

(a)

B1: Correctly takes out a factor and proceeds to $3\times\left(1-\frac{5}{3}x\right)^{-2}$ which may be unsimplified. May be implied

M1: Expands $(1+kx)^{-2}$ $k\neq\pm1$ to give the correct structure for 3rd or 4th term

$\frac{(-2)(-3)}{2}(kx)^2$ or $\frac{(-2)(-3)(-4)}{3!}(kx)^3$ with or without the brackets around *kx*

A1: A correct simplified or unsimplified form of the expansion of $\left(1-\frac{5}{3}x\right)^{-2}$ May be implied by their final answer. Allow terms to be listed, which may be on different lines for this mark.

A1: Fully correct simplified expansion $=3+10x+25x^2+\frac{500}{9}x^3$ with all terms written on one line. Do not isw if they e.g. multiply through by 9
