Question Number	Scheme	Marks
1(a)	$(2-5x)^{-2} = \frac{1}{4}\left(1-\frac{5x}{2}\right)^{-2}$ or e.g. $\frac{8}{4\left(1-\frac{5x}{2}\right)^2}$	B1
	$=8\times\frac{1}{4}\left(1+(-2)\times\left(-\frac{5x}{2}\right)+\frac{(-2)\times(-3)}{2!}\times\left(-\frac{5x}{2}\right)^2+\frac{(-2)\times(-3)\times(-4)}{3!}\times\left(-\frac{5x}{2}\right)^3\ldots\right)$	M1A1
	$\frac{8}{(2-5x)^2}=2+10x+\frac{75}{2}x^2+125x^3\ldots$	A1
		(4)
Alt (a) by direct expansion	$8\times(2-5x)^{-2}$ $=8\times\left(2^{-2},+(-2)2^{-3}(-5x)^1+\frac{-2\times-3}{2!}2^{-4}(-5x)^2+\frac{-2\times-3\times-4}{3!}2^{-5}(-5x)^3\right)$	B1, M1A1
	$\frac{8}{(2-5x)^2}=2+10x+\frac{75}{2}x^2+125x^3\ldots$	A1
(b)	$\lvert x\rvert<\frac{2}{5}$ o.e.	B1
		(1)
		(5 marks)

(a)

B1: For taking out a factor of 2^{-2} or $\frac{1}{4}$ **from** $(2-5x)^{-2}$ to obtain e.g. $\frac{1}{4}(1\pm\ldots)^{-2}$, $2^{-2}(1\pm\ldots)^{-2}$.

May be implied by a constant term of 2 or by e.g. $2(1\pm\ldots)^{-2}$

The "8" is likely to be present but it is not required for this mark.

M1: For the form of the binomial expansion $(1+ax)^{-2}$

Requires the correct structure for either term three or term four. Allow a slip on the sign.

So allow for either $\frac{(-2)\times(-3)}{2}(\pm ax)^2$ or $\frac{(-2)\times(-3)\times(-4)}{3!}(\pm ax)^3$ where $a \neq 1$, could be -5 but must be the "a" in their $"2"(1\pm ax)^{-2}$.

Condone missing brackets around the "ax" for this mark.

A1: Any unsimplified or simplified but correct form of the binomial expansion for $\left(1-\frac{5x}{2}\right)^{-2}$

Ignore the factor preceding the bracket for this mark and ignore any extra terms if found.

Score for $1+(-2)\times\left(-\frac{5x}{2}\right)+\frac{(-2)\times(-3)}{2!}\times\left(-\frac{5x}{2}\right)^2+\frac{(-2)\times(-3)\times(-4)}{3!}\times\left(-\frac{5x}{2}\right)^3$ o.e.

Brackets must be present unless they are implied by later work. Allow $\left(\frac{5x}{2}\right)^2$ for $\left(-\frac{5x}{2}\right)^2$.

The simplified form is $1+5x+\frac{75}{4}x^2+\frac{125}{2}x^3+\ldots$ Allow as a list of terms.

A1: cao $2+10x+\frac{75}{2}x^2+125x^3\ldots$ This must be simplified and allow as a list of terms.