Question Number	Scheme	Marks
1 (a)	$\dfrac{5x+10}{(1-x)(2+3x)} \equiv \dfrac{A}{1-x}+\dfrac{B}{2+3x} \Rightarrow$ Value for A or B	**M1**
	One correct value, either $A=3$ or $B=4$	**A1**
	Correct PF form $\dfrac{3}{1-x}+\dfrac{4}{2+3x}$	**A1**
		(3)
(b)(i)	$\dfrac{A}{1-x}=A(1-x)^{-1}=A\left(1+x+x^2+...\right)$	**B1**
	$\left\{\dfrac{B}{2}\right\}\left(1+\dfrac{3x}{2}\right)^{-1}=\left\{\dfrac{B}{2}\right\}\left(1+(-1)\dfrac{3x}{2}+\dfrac{(-1)(-2)}{2}\left(\dfrac{3x}{2}\right)^2+...\right);=\dfrac{B}{2}\left(1-\dfrac{3x}{2}+\dfrac{9x^2}{4}+...\right)$	**M1; A1**
	$f(x)= \quad 3\times\left(1+x+x^2+...\right)+ \quad \dfrac{4}{2}\left(1-\dfrac{3x}{2}+\dfrac{9x^2}{4}+...\right)$	**M1**
	$=5+\dfrac{15}{2}x^2+...$	**A1**
		(5)
(b)(ii)	$\left\|x\right\|<\dfrac{2}{3}$	**B1**
		(1)
		(9 marks)
(b)(i) Alt 1	$(1-x)^{-1}=1+x+x^2+...$	**B1**
	$\left\{\dfrac{1}{2}\right\}\left(1+\dfrac{3x}{2}\right)^{-1}=\left\{\dfrac{1}{2}\right\}\left(1+(-1)\dfrac{3x}{2}+\dfrac{(-1)(-2)}{2}\left(\dfrac{3x}{2}\right)^2+...\right);=\dfrac{1}{2}\left(1-\dfrac{3x}{2}+\dfrac{9}{4}x^2+...\right)$	**M1; A1**
	$\dfrac{5x+10}{(1-x)(2+3x)}=(5x+10)\left(1+x+x^2+...\right)\times\dfrac{1}{2}\left(1-\dfrac{3x}{2}+\dfrac{9x^2}{4}+...\right)=5+...x+...x^2$	**M1**
	$=5+\dfrac{15}{2}x^2+...$	**A1**
		(5)
(b)(i) Alt 2	$\dfrac{5x+10}{(1-x)(2+3x)}=(5x+10)\left(2+\left(x-3x^2\right)\right)^{-1}=\dfrac{1}{2}(5x+10)\left(1+\dfrac{1}{2}\left(x-3x^2\right)\right)^{-1}$	**B1**
	$\left(1+p(x)\right)^{-1}=\left(1\pm p(x)+\dfrac{(-1)(-2)}{2}\left(p(x)\right)^2+...\right);\ \dfrac{1}{2}\left(1-\dfrac{1}{2}\left(x-3x^2\right)+\dfrac{1}{4}\left(x-3x^2\right)^2+...\right)$	**M1; A1**
	$(10+5x)\left(\dfrac{1}{2}-\dfrac{1}{4}x+\dfrac{3}{4}x^2+\dfrac{1}{8}x^2+...\right)=5-\dfrac{5}{2}x+\dfrac{35}{4}x^2+\dfrac{5}{2}x-\dfrac{5}{4}x^2+...$	**M1**