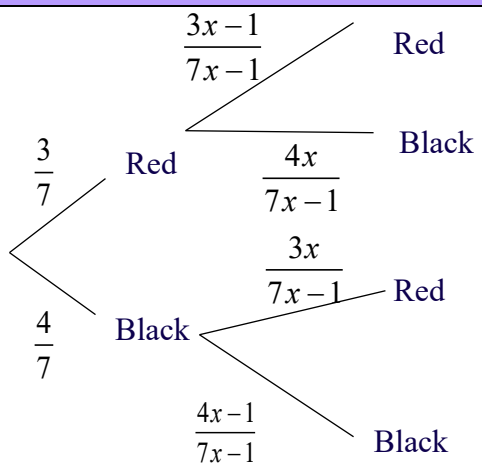
Question Number	Scheme		Marks
5 (a)		$\frac{3}{7}$ in the correct place on the tree diagram	B1
		$\frac{3x-1}{7x-1}$ in the correct place on the tree diagram	B1
		$\frac{3x}{7x-1}$ and $\frac{4x-1}{7x-1}$ in the correct place on the tree diagram	B1
			(3)
(b)	$'\frac{3}{7}'\times\frac{4x}{7x-1}+\frac{4}{7}\times'\frac{3x}{7x-1}'=\frac{32}{63}$	$'\frac{3}{7}'\times\frac{4x}{7x-1}=\frac{16}{63}$	$\frac{4}{7}\times'\frac{3x}{7x-1}'=\frac{16}{63}$ M1
	$\frac{24x}{7x-1}=\frac{32}{9}\Rightarrow x=4$	$\frac{12x}{7x-1}=\frac{16}{9}\Rightarrow x=4$	$\frac{12x}{7x-1}=\frac{16}{9}\Rightarrow x=4$ dM1 A1
	[So $7\times'4'=$]28 counters in total		dA1ft
			(4)
(c)	$\text{P}(B \text{ and } R)=\frac{4}{7}\times'\frac{12}{27}'\left[=\frac{16}{63}\right]$ or $\text{P}(BR \text{ and } RR)=\frac{4}{7}\times'\frac{12}{27}'+'\frac{3}{7}'\times'\frac{11}{27}'\left[=\frac{3}{7}\right]$		M1
	$\text{P}(1\text{stblack}\mid 2\text{ndRed})=\frac{\frac{4}{7}\times'\frac{12}{27}'}{\frac{4}{7}\times'\frac{12}{27}'+'\frac{3}{7}'\times'\frac{11}{27}'}=\frac{16}{27}$		M1 A1
			(3)

	Notes	Total 10
(a)	**B1**	for $\frac{3}{7}$ in the correct place on the tree diagram. Allow $\frac{3x}{7x}$
	B1	for $\frac{3x-1}{7x-1}$ in the correct place on the tree diagram Allow equivalent expresions e.g. $1-\frac{4x}{7x-1}$
	B1	both $\frac{3x}{7x-1}$ and $\frac{4x-1}{7x-1}$ in the correct place on the tree diagram. Allow equivalent expressions
(b)	**M1**	for setting their P(two counters are different colours) = $\frac{32}{63}$ or P(R and B) = $\frac{16}{63}$ or P(B and R) = $\frac{16}{63}$ ft their tree diagram
	dM1	Dependent on previous M mark. For an attempt to simplify the probability expression leading to x = … (At least one correct step needed) May be implied by $x = 4$
	A1	for $x = 4$
	dA1ft	Dep on 2nd M mark. Ft their x provided x is a positive integer
(c)	**M1**	For a correct probability expression for either P(B and R) or P(BR and RR) ft their tree diagram and their x, provided that x is an integer Allow expressions given in terms of x e.g. $\frac{4}{7}\times\frac{3x}{7x-1}$ or $\frac{4}{7}\times\frac{3x}{7x-1}+\frac{3}{7}\times\frac{3x-1}{7x-1}$ ft their tree diagram
	M1	For a correct ratio of probabilities ft their tree diagram and their x, provided that x is an integer Allow expressions given in terms of x e.g. $\frac{\frac{4}{7}\times\frac{3x}{7x-1}}{\frac{4}{7}\times\frac{3x}{7x-1}+\frac{3}{7}\times\frac{3x-1}{7x-1}}$ ft their tree diagram
	A1	Allow awrt 0.593