Question Number	Scheme	Marks
7(a)	$E(3-2X)= 3-2E(X)$	M1
	$= 3-2\left(\frac{(a+b)}{2}\right)$ or $3-a-b$	A1
		(2)
(b)	$P(X > \frac{1}{3}b+\frac{2}{3}a) =$ $\frac{b-(\frac{1}{3}b+\frac{2}{3}a)}{b-a}=\frac{2}{3}$ or $1-\frac{(\frac{1}{3}b+\frac{2}{3}a)-a}{b-a}=\frac{2}{3}$	M1A1
		(2)
(c)	$E(3X^2)=\int_a^b \frac{1}{(b-a)}3x^2\,dx$ | $[\mathrm{Var}(X)=]\ \frac{(b-a)^2}{12}\left[=E(X^2)\right]$	M1
	$=\left[\frac{1}{(b-(-b))}x^3\right]_{-b}^{b}=\left(\frac{b^3-(-b^3)}{2b}\right)$ | $E(3X^2)=3\left(\frac{(b-(-b))^2}{12}\right)$	dM1
	$=b^2$	A1
		(3)
(d)	Range = $b-a=18$	M1
	Var $(X)=\frac{18^2}{12}=27$	A1
		(2)

	Notes	Total 9
(a)	**M1**	for writing or using $3-2E(X)$
	A1	For a correct expression for $3-2E(X)$ e.g. $3-(a+b)$ Need not be simplified
(b)	**M1**	for a correct expression for $P(X > \frac{1}{3}b+\frac{2}{3}a)$
	A1	for $\frac{2}{3}$
(c)	**M1**	for a correct integral for $E(3X^2)$ (ignore limits) or for a correct expression for Var(X)
	dM1	M1 Dep on 1st M mark. For correct integration and correct use of $a=-b$ or for $3E(X^2)$ and correct use of $a=-b$
	A1	Cao
(d)	**M1**	for writing or using $(b-a)=18$ May be implied by a correct answer or use of U[−9, 9]
	A1	Cao