Question Number	Scheme	Marks
5(a)	$d = 7$	B1
	$\frac{c}{3} - \frac{7}{6} = 1 - \frac{1}{6}("7" - c)^2$	M1
	$\frac{c}{3} - \frac{7}{6} = 1 - \frac{1}{6}("49" - 2\times"7"c + c^2)$ oe or $c^2 - 12c + 36 = 0$ oe	dM1
	$(c-6)^2 = 0 \ \therefore c = 6$ *	A1*
		(4)
(b)	$P(X > 3.5) = 1 - \frac{1}{6}(3.5-3)^2$	M1
	$= \frac{23}{24}$ oe awrt 0.958	A1
		(2)
(c)	$P(3.5 < X < 5.5) = \left(\frac{5.5}{3} - \frac{7}{6}\right) - \left(\frac{1}{6}(3.5-3)^2\right) \left[= \frac{5}{8}\right]$ oe	M1
	$P(X > 4.5 \mid 3.5 < X < 5.5) = \frac{\left(\frac{5.5}{3} - \frac{7}{6}\right) - \left(\frac{4.5}{3} - \frac{7}{6}\right)}{"5/8"}$	M1
	$= \frac{8}{15}$ oe awrt 0.533	A1
		(3)

	Notes	Total 9
(a)	**B1**	realising $d = 7$
	M1	Forming an equation in c with their d or d
	dM1	Dependent on previous M1. Multiplying out brackets and would reduce to a 3 term quadratic correct for their d or d
	A1*	All previous marks must be awarded. For solving the correct 3TQ and statement
(b)	**M1**	Substitution of 3.5 into correct expression
	A1	Allow equivalent fractions or awrt 0.958
(c)	**M1**	Correct method to calculate $P(3.5 < X < 5.5)$ may use $1 - "\frac{23}{24}"$ for $\left(\frac{1}{6}(3.5-3)^2\right)$ Useful figures are $\left(\frac{5.5}{3} - \frac{7}{6}\right) = \frac{2}{3}$ and $\left(\frac{1}{6}(3.5-3)^2\right) = \frac{1}{24}$
	M1	Correct method using their 5/8 Useful figure is $\left(\frac{5.5}{3} - \frac{7}{6}\right) - \left(\frac{4.5}{3} - \frac{7}{6}\right) = \frac{1}{3}$
	A1	Allow equivalent fractions or awrt 0.533