Question Number	Scheme			Marks
4 (i)(a)	$\frac{b-27}{b-a}=\frac{3}{4}$ or $\frac{27-a}{b-a}=\frac{1}{4}$ and $\frac{(b-a)^2}{12}=300$			M1M1
	a = 12 and b = 72			A1
				(3)
(b)	$\left[4\mathrm{P}(X<k-10)=\mathrm{P}(X>k+20)\Rightarrow\right]\ 4\left(\frac{k-10-'12'}{'72-12'}\right)=\frac{'72'-(k+20)}{'72-12'}$			M1
	$4(k-22)=52-k\Rightarrow k=28$			A1
				(2)
(ii)	L □ U(21, 42)	L □ U(0, 42)	S □ U(5.25, 10.5)	
	$\frac{L}{4}-\left(\frac{42-L}{4}\right)>2$	$\frac{L}{4}-\left(\frac{42-L}{4}\right)>2$ or $\left(\frac{42-L}{4}\right)-\frac{L}{4}>2$	$S-(10.5-S)>2$	M1
	$L>25$	$L<17$ or $L>25$	$S>6.25$	A1
	$=(42-'25')\times\frac{1}{21}$	$=('17'-0)\times\frac{1}{42}+(42-'25')\times\frac{1}{42}$	$(10.5-'6.25')\times\frac{1}{5.25}$	M1
	$=\frac{17}{21}$ oe			A1
				(4)

	Notes	**Total 9**
(i)(a)	**M1**	For setting up a correct equation for the probability **or** the variance
	M1	For setting up a correct equation for the probability **and** the variance
	A1	For a = 12 and b = 72 (correct answers score 3 out of 3)
(b)	**M1**	For an unsimplified equation ft their a and their b
	A1	Cao
(ii)	**M1**	For $\frac{L}{4}-\left(\frac{42-L}{4}\right)>2$ or $\left(\frac{42-L}{4}\right)-\frac{L}{4}>2$ or $S-(10.5-S)>2$ may be seen in a probability statement allow any letter for L or S may be implied by $L>25$ or $L<17$ or $S>6.25$
	A1	$L>25$ or $L<17$ or $S>6.25$ may be seen in a probability statement or implied by 2nd M1
	M1	For use of $(42-'25')\times\frac{1}{21}$ or $('17'-0)\times\frac{1}{42}+(42-'25')\times\frac{1}{42}$ or $(10.5-'6.25')\times\frac{1}{5.25}$
	A1	Allow awrt 0.81