Qu	Scheme		Marks
3(a)	$\left[\bar{x} =\right]\frac{3711}{81}\left[= 45.814...\right]$	$\left[\sum l =\right]3711+81\times 600\left[= 52311\right]$	M1
	$\left[\bar{l} =\right]"45.814..."+600$	$\left[\bar{l} =\right]\frac{"52311"}{81}$	M1
	$\left[\bar{l} =\right]645.81...$ **awrt 646**		A1
			(3)
(b)	$\left[\sigma_x^{\,2} =\right]\frac{475181}{81}-\left(\frac{3711}{81}\right)^2\left[= 3767\right]$	$\left[\text{Var}(L) =\right]\frac{34088381}{81}-\left(\frac{"52311"}{81}\right)^2$	M1
	$= 3767.43... \Rightarrow \boldsymbol{\sigma_l}^2 = 3767.43...$	$= 3767.43\ldots$ **awrt 3770**	A1
			(2)
(c)	40		B1cao
			(1)
(d)	IQR = 5400 – 3800 [= 1600]		M1
	$5400+1.5\times"1600"$ [= 7800] or $3800-1.5\times"1600"$ [= 1400]		M1
	7800 > 7700 and 1400 < 1600 therefore there are no outliers		A1
			(3)
	Notes		**Total 9**
(a)	M1 for a correct method to find $\bar{x}$ or $\sum l$ Allow 45.8 or better. Ignore labels		
	M1 for a correct method to find $\bar{l}$ ft their $\bar{x}$ if it is clearly labelled or it comes from $\frac{3711}{81}$ or ft their $\sum l$ if it is clearly labelled or comes from $3711+81\times 600$		
	A1 awrt 646 or $\frac{17437}{27}$ or $\frac{52311}{81}$ oe		
(b)	M1 correct method to find Var (X) implied by awrt 3770 or a correct method to find Var (L) ft their $\sum l$ or Allow calculation of sd$\left[\sigma_x\right]$ = awrt 61.4 Ignore labels		
	A1 awrt 3770 labelled clearly as Var(L) or Var (L) = Var(X) or $\sigma_l = \sigma_x$ stated or variance is not changed by coding is stated or they have gained the answer from $\frac{34088381}{81}-\left(\frac{"52311"}{81}\right)^2$		
(c)	B1 cao		
(d)	M1 correct method to find IQR. May be implied by a correct limit. NB $1.5\times(5400-3800)=2400$		
	M1 for a correct method to find the upper or the lower outlier boundary.		
	A1 both 7800 and 1400 correct **and** 7700 and 1600 (as the minimum not IQR) seen **and** explicitly stating **no outliers**		