Question Number	Scheme	Marks
2 (a)(i)	Mean = 71.83… awrt 71.8	B1
(ii)	Standard deviation = $\sqrt{\frac{62802}{12}-\left(\frac{862}{12}\right)^2}$ or variance = $\frac{62802}{12}-\left(\frac{862}{12}\right)^2$	M1
	$\sqrt{73.47...}$ = 8.571… 8.57 * (to 3s.f.)	A1*
		(3)
(b)	$S_{xx} = 62802 - \frac{862^2}{12}\left[=\frac{2645}{3}=881.66...\right]$	M1
	$r = \frac{512.67}{\sqrt{413.67\times '881.66...'}}$	M1
	= 0.8489… awrt 0.849	A1
		(3)
(c)	Mean = $\frac{5}{9}\times('71.8'-32)$	M1
	= 22.11… awrt 22.1	A1ft
	Standard deviation = $\frac{5}{9}\times 8.57...$	M1
	= 4.76… awrt 4.76	A1
		(4)
(d)	$r = '0.8489...'$ / same (as for *x* and *y*)	M1
	r not affected by (linear) coding oe	A1
		(2)
	Notes	**Total 12**

(a)(i)	**B1**	awrt 71.8 Allow $\frac{431}{6}$ oe
(ii)	**M1**	A correct method to find the standard deviation or the variance ft their mean for M1 only Also allow s.d. $=\sqrt{\frac{S_{xx}}{n}}$
	A1*	Must see at least one simplification of working **and** the given answer 8.57. e.g. $\sqrt{73.47...}$ **or** 8.572 **or** 8.571… **or** $\frac{23\sqrt{5}}{6}$ **or** $\sqrt{\frac{2645}{36}}$ therefore s.d. = 8.57* (to 3s.f.) $\sqrt{\frac{62802}{12}-71.8^2}$ scores M1A0 (use of 71.8 or 71.83 always scores M1A0). To get required accuracy must see at least 71.833 used i.e. $\sqrt{\frac{62802}{12}-71.833^2}$
(b)	**M1**	A correct method to find S_{xx} (implied by awrt 882)
	M1	A correct method to find PMCC using their value of S_{xx}
	A1	awrt 0.849
(c)	**M1**	A correct method to find the mean ft their mean in part (a)
	A1ft	awrt 22.1 ft their mean in part (a)
	M1	A correct method to find the standard deviation (do not isw if any further calculation is done after multiplying by $\frac{5}{9}$)
	A1	awrt 4.76
(d)	**M1**	*r* = their part (b) provided –1 ,, their part (b) ,, 1 allow 2 s.f. on the ft
	A1	Any correct reasoning but M1 must be scored. Allow e.g. 'addition/subtraction **and** multiplication/division does not affect *r*' ,