Question Number	Scheme	Marks
1(a)	$[S_{hw} =] 604135 - \frac{1160 \times 4160}{8}$ or $[S_{ww} =] 2166600 - \frac{4160^2}{8}$	M1
	$[S_{hw} =] 935$	A1
	$[S_{ww} =] 3400$	A1
		(3)
(b)	$r = \frac{"935"}{\sqrt{286 \times "3400"}} = 0.9481...$ awrt **0.948**	M1A1
		(2)
(c)	$b = \frac{"935"}{286} [= 3.269...]$	M1
	$a = \frac{4160}{8} - "3.269..." \times \frac{1160}{8} [= 45.96...]$	M1
	$w = 46.0 + 3.27h$ *	A1*
		(3)
(d)	[On average] for **each/1** [cm] increase in **height/*h*** the **weight/*w* increases** by "**3.27**"[kg]	B1
		(1)
(e)(i)	546.31 awrt **546**	B1
(ii)	601.9 awrt **602**	B1
		(2)
(f)	The 1st estimate is more reliable estimate since… • The 1st estimate is an **interpolation**/The 2nd is an **extrapolation** • 153(height) is within data range/170 is not within data range • 153 is closer to the mean(height)/170 is further from the mean	B1
		(1)

	Notes		Total 12
(a)	**M1**	for a correct expression for S_{hw} or S_{ww} implied by either correct answer	
	A1	935 cao	
	A1	3400 cao	
(b)	**M1**	for a valid attempt at *r* allow ft their values from (a)	
	A1	awrt 0.948 correct answer scores 2 out of 2	
(c)	**M1**	for a correct numerical expression to find the value of *b*	
	M1	for a correct method to find the value of *a* ft their *b* Allow $w - 520 = "3.269..."(h - 145)$ oe for this mark	
	A1*	correct solution with both method marks and correct given equation stated. do not award this mark if there is incorrect working **seen** e.g. *a* =	

		45.85 rounding to a = 46.0 do not allow $w=46+3.27h$
(d)	**B1**	for a correct numerical interpretation which includes **height/*h*** and **weight/*w*** if units are stated then they must be correct
(e)(i)	**B1**	awrt 546
(ii)	**B1**	awrt 602
(f)	**B1**	for 1st estimate oe **and** a correct supporting reason. ignore extraneous non-contradictory comments. for 2nd/3rd reason, do not allow comments that refer to **weights**