Question			Answer	Marks	Part Marks and Guidance	
1	(a)		Correct sketch	1	Straight line crossing +ve x – axis and –ve y – axis	Condone freehand
	(b)		$\frac{1}{2}$ oe	2	Or M1 for evidence of numerical attempt at 'rise/run' Or SC1 for 2	eg can be implied by $-\frac{1}{2}$
	(c)		$y = \frac{1}{2}x + 6$	2	Or M1 for $\frac{1}{2}x + 6$,or $y = mx + 6$ or $y = \frac{1}{2}x + c$	Any m except 0, any c (inc 0)
	(d)		Not parallel as $m \neq \frac{1}{2}$ Not perpendicular as $m \neq -2$ Neither	M1 M1 A1	Allow gradient not the same Allow not negative reciprocal	

2			$y = 6x - 5$ oe isw	2	**B1** for $y = ax - 5$ or $y = 6x \pm b$ or $6x - 5$	Any a or b (incl. 0)

3	**(a)**	$y = x - 5$, $y = -3x + 5$, $y = \frac{1}{2}x + 5$	**3**	**B1** for each one	
	(b)	$y = -\frac{1}{2}x + 3$	**2**	**B1** for $y = -\frac{1}{2}x + c$ or $y = mx + 3$	

4	**(a)**		4	1	Not 4*x*	Allow 4/1
	(b)		(0, ⁻5) cao	1		
	(c)		$y = 4x$	2	**B1** for $4x$, $y = mx$ (any $m \neq 0$), $y = 4x + c$ (any $c \neq 0$)	Condone $y = 4x + 0$ for **2** marks And $y = mx + 0$ for **1** mark
	(d)		$-\frac{1}{5} \times 4 \neq -1$	1	Or gradient should be $-\frac{1}{4}$ Not –ve reciprocal etc	Soi 'Inverse' does not mean 'reciprocal'

5	**(a)**		15	2	**M1** for $m = \frac{145 - 70}{8 - 3}$ or better	Ignore units
	(b)		$J = 15t + 25$ oe	3	**B1FT** for (*their* 15)*t* **M1** for method to find constant term Or **SC2** for (*their* 15)*t* + 25 or $y = 15x + 25$ Or **SC1** for *mt* + 25	Condone other variables used instead of *t* Ignore units

6	(a)		Ruled line of best fit	1	Within tramlines, any length Allow not passing through (0, 0)	Overlay available If extended must stay within tramlines
	(b)		Answer in range 10-14	2	**M1** for (vertical change) / (horizontal change) soi or for correct gradient but wrong form	Can be implied from a triangle drawn on line of best fit or from any 2 points eg 12*x* etc
	(c)		(Average) Price (per Satsuma)	1	eg They cost 11p	Allow costs in range 10-14 or FT **0** for a description of correlation
	(d)		y = (*their* 12)x + *their c* oe	2	**B1** for y = (*their* 12)x + any *c*	Allow correct or FT Tolerance ±2 for *c* (look at extension if line does not cross *y*-axis)

7	**(a)**		Ruled line drawn	1		Overlay available
	(b)		$-\frac{2}{3}$	2FT	**B1** for $-\frac{8}{12}$ or $-\frac{4}{6}$ (and other correct unsimplified forms eg $-\frac{1}{1.5}$) or $\frac{2}{3}$ or -0.66 (or better) or $-\frac{2}{3}x$ isw	If wrong points plotted allow correct or FT for **2** provided non integer, otherwise max **1**
	(c)		$y = -\frac{2}{3}x + 8$	2FT	*their m* and *c* **B1** for $y = mx + 8$ or $y = -\frac{2}{3}x + c$ or $-\frac{2}{3}x + 8$ or $y = -\frac{2}{3} + 8$	Allow correct or FT Any *m* or *c* including 0 eg **B1** for $y = mx + 12$ if (0, 12) plotted
	(d)		$\frac{3}{2}$ or $1\frac{1}{2}$ or 1.5 isw	1FT	– 1/(*their m)*	Allow other forms if correct eg $\frac{-3}{-2}$ etc **0** for $\frac{3}{2}x$ etc

8	**(a)**	Correct plots and ruled line between w = 50 and w = 260	**3**	**B2** for all 5 points correct **or** **B1** for any 2 points correct **and** **B1** for a ruled line through at least 4 correct points	accuracy: the centre of their cross, dot or top of their stick should lie within the 'circle' on the overlay
	(b)	9.9 to 10.1	**1**	or FT *their* straight line	
	(c)	0.02 oe	**2**	**M1** for an attempt at $\frac{\Delta L}{\Delta W}$ from *their* graph	equivalents include $\frac{1}{50}$ and 2% and isw any attempt to simplify their answer
	(d)	$L = (\textit{their}\ 0.02)W + (\textit{their}\ 10)$	**1**		
	(e)	No data for weights that big	**1**	Spring might snap, equation may be invalid for large values of W or limit to the length, etc	

9	**(a)**		(1, 4.5)	2	**B1** for each coordinate	
	(b)	**(i)**	58	2	**M1** for $t^2 = 9$ or $6t^2 = 54$	
		(ii)	$[t =][\pm]\sqrt{\frac{d-4}{6}}$ oe as final answer	3	nfww **M1** for a correct first step: $d - 4 = 6t^2$ or $d/6 = t^2 + 4/6$ oe **M1** for correctly making t^2 the subject, FT their first step **M1** for finding the square root of their expression for t^2	Square root symbol must extend below fraction line
	(c)		3 and 32	2	**B1** each	
	(d)	**(i)**	2.5 oe	1	accept 5/2	
		(ii)	$-3-2t$	2	Accept $-2t-3$ **M1** for $5-2(t+4)$	