Question Number	Scheme	Marks
3.(a)	Attempts to make y the subject	M1
	States $-\frac{3}{5}$ or exact equivalent	A1
		(2)
(b)	Uses perpendicular gradients rule $\Rightarrow$ gradient $l_2 = \frac{5}{3}$	M1
	Forms equation of l_2 using (6,-2) $\quad y+2="\frac{5}{3}"(x-6)$	M1
	$y=\frac{5}{3}x-12$	A1
		(3) **(5 marks)**
Alt1(a)	Eg Coordinates of two points on the line $(0,1.4)$ and $(1,0.8)$	
	Gradient $=\frac{0.8-1.4}{1-0}$	M1
	Gradient $=-0.6$	A1

(a)

M1 For an attempt to rearrange $3x+5y-7=0$ and make y the subject.

Expect to see $\pm 5y=...$ followed by $y=...$ or equivalent. $\frac{3}{5}$ on its own is M0.

Alternatively they may find two pairs of coordinates and find the gradient between those two points.

Allow one slip in calculating the coordinates and it must be clear that they are attempting $\frac{y_2-y_1}{x_2-x_1}$

A1 For stating $-\frac{3}{5}$ or exact equivalent in (a). A correct answer implies both marks and isw after a correct gradient is stated.. (The value of c does not need to be correct).

Do not allow $y=-\frac{3}{5}x+\frac{7}{5}$ without some statement for 'm'. Do not allow $-\frac{3}{5}x$.

(b)

M1 Uses the perpendicular gradient rule following through on their gradient from (a).
If a gradient is not given, follow through on their '*m*'

M1 For the equation of a straight line with a **changed** gradient using $(6,-2)$.

So if (a) was $-\frac{3}{5}$, then $(y+2)=\frac{3}{5}(x-6)$ would score this. At least one bracket must be correct. If the form $y=mx+c$ is used they must proceed as far as finding *c*. They must either have shown their gradient and $(6,-2)$ substituted into $y=mx+c$ and rearrange (maybe with errors) to find *c* or if they show no working then their *c* must be correct.

A1 $y=\frac{5}{3}x-12$ Allow exact equivalent values for their constants eg $y=\frac{10}{6}x-\frac{36}{3}$, $y=1.\dot{6}x-12$, $y=\frac{5x}{3}-12$ but do not allow equations such as $y=1.67x-12$. ISW after a correct equation in the correct form is found.

Question Number	Scheme	Marks
4.	When ---- represents $<$ or $>$ and —— represents $\leq$ or $\geq$ Either $2y \leq x$ or $y \geq 2x - \frac{1}{8}x^2$	B1
	$2x - \frac{1}{8}x^2 = 0 \Rightarrow x = 16 \Rightarrow x < \ldots$ or $x \leq \ldots$	M1
	$x < 16$, $2y \leq x$ and $y \geq 2x - \frac{1}{8}x^2$	A1 (3) **(3 marks)**
Alt1	When ---- represents $\leq$ or $\geq$ and —— represents $<$ or $>$ Either $2y < x$ or $y > 2x - \frac{1}{8}x^2$	B1
	$2x - \frac{1}{8}x^2 = 0 \Rightarrow x = 16 \Rightarrow x < \ldots$ or $x \leq \ldots$	M1
	$x \leq 16$, $2y < x$ and $y > 2x - \frac{1}{8}x^2$	A1
		(3)

B1 Sight of $2y \leq x$ or $y \geq 2x - \frac{1}{8}x^2$. Either inequality is sufficient for B1 and they may be written in an equivalent correct form (see NB below)

NB Inequalities cannot be in terms of R

M1 Attempts to find the upper bound for x to define R. Solves to find where the quadratic intersects the x-axis and then uses their value to write $x <\ldots$ or $x \leq \ldots$. Use general principles for solving a quadratic equation (page 5). They do not need to find or state $x = 0$ and ignore any lower bound eg $0 < x < \ldots$

A1 $2y \leq x$, $y \geq 2x - \frac{1}{8}x^2$ and $x < 16$ (Allow $A \leq x < 16$ where $A \leq 12$).

Candidates may write more than one inequality for a particular boundary. In these cases mark the last one. Correct inequalities labelled on the graph are also acceptable, however, an inequality written below takes precedence.

NB You may see $y \leqslant \frac{x}{2}$ for $2y \leqslant x$ or even $2x - \frac{1}{8}x^2 \leq y \leq \frac{x}{2}$ oe

Alternatively, some candidates may express their inequalities involving a boundary for a dashed line using $\leq$ or $\geq$ and a boundary for a solid line using $<$ or $>$. It may not always be clear so mark positively. See Alt1