Q1. (a) Write down the equation of a straight line that is parallel to $y = 5x + 6$

.....

(1)

(b) Find an equation of the line that is perpendicular to the line $y = 5x + 6$ and passes through the point (–2, 5).

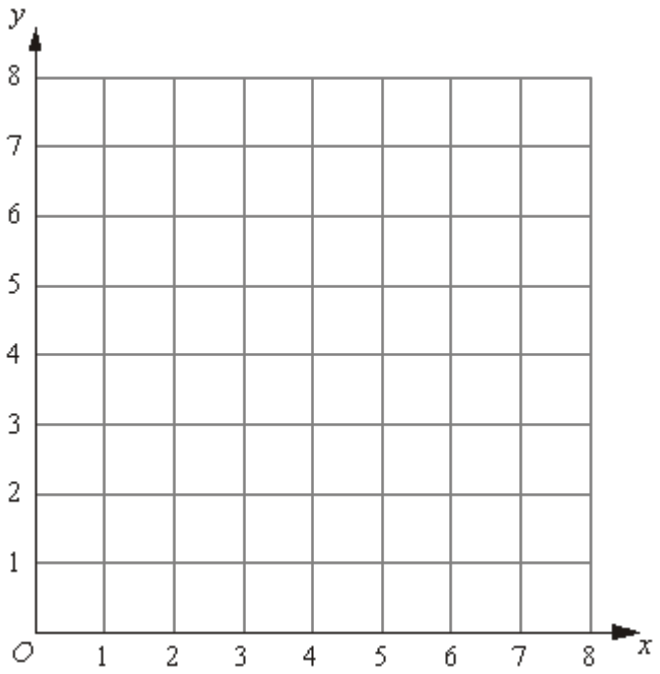
.....

(3)
(Total 4 marks)

Q2. The region **R** satisfies the inequalities

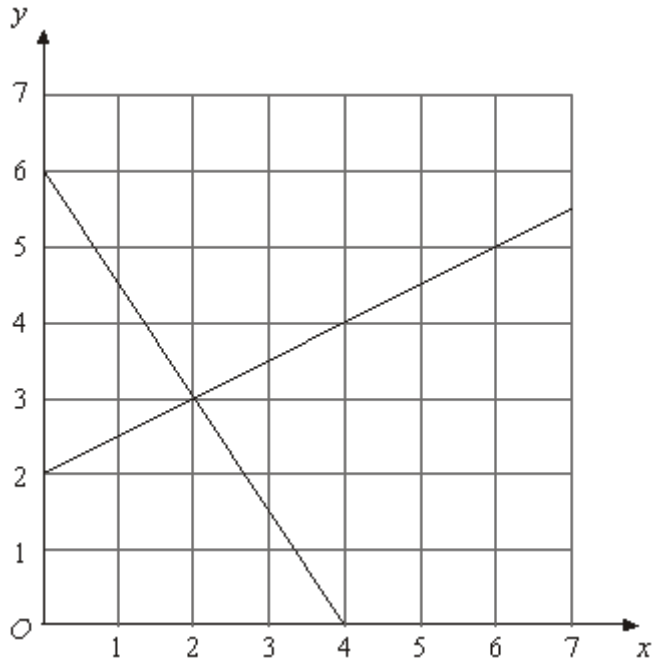
$x \geq 2, y \geq 1, x + y \leq 6$

On the grid below, draw straight lines and use shading to show the region **R**.



(Total 3 marks)

Q3.



The diagram shows graphs of $y = \frac{1}{2}x + 2$ and $2y + 3x = 12$

(a) Use the diagram to solve the simultaneous equations

$$y = \frac{1}{2}x + 2$$

$$2y + 3x = 12$$

x = ... y = ...

(1)

(b) Find an equation of the straight line which is parallel to the line $y = \frac{1}{2}x + 2$ and passes through the point (0, 4).

.....

(2)
(Total 3 marks)

M1.

	Working	Answer	Mark	Additional Guidance
(a)		$y = 5x + c$	1	**B1** for $y = 5x + c$ oe $c \neq 6$
(b)	gradient = $-\frac{1}{m} = -\frac{1}{5}$ $y = -\frac{1}{5} + c$ $x = -2, y = 5$ $5 = \frac{2}{5} + c$ $c = 5 - \frac{2}{5} = 4\frac{3}{5}$ $y = -\frac{1}{5}x + 4\frac{3}{5}$	$y = -\frac{1}{5}x + 4\frac{3}{5}$	3	**M1** recognition that gradient = $-\frac{1}{m} = -\frac{1}{5}$ oe **M1** substitution of $x = -2$, $y = 5$ in $y = mx + c$ where $m = -\frac{1}{5}, \frac{1}{5}$ or -5 **A1** $y = -\frac{1}{5}x + 4\frac{3}{5}$ oe
				Total for Question: 4 marks

M2.

Answer	Mark	Additional Guidance
Region indicated	3	**M1** Both $x = 2$ drawn from at least (2, 1) to (2, 4) and $y = 1$ drawn from at least (2, 1) to (5, 1) **M1** for $x + y = 6$ drawn from at least (2, 4) to (5, 1) **A1** Correct region indicated by shading or clearly labelled. Boundaries of the region may be solid or dashed.
		Total for Question: 3 marks

M3.

	Answer	Mark	Additional Guidance
(a)	$x = 2, y = 3$	1	**B1** cao
(b)	$y = \frac{1}{2}x + 4$	2	**M1** for $y = mx + 4$ or $y = \frac{1}{2}x + c$, $c \neq 2$, or $\frac{1}{2}x + 4$ **A1** for $y = \frac{1}{2}x + 4$ oe
			Total for Question: 3 marks

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In part (a) half the candidates could provide an equation of a straight line parallel to the given line with some enjoying providing unusual, but correct answers such as $y = 5x +$ 123456789 The most common incorrect responses were simply to swap the 5 and 6 over, doubling and writing $y = 10x + 12$, omitting $y =$ or writing $y = –5x + 6$ In part (b) there were hardly any fully correct answers (< 4%). Many had no idea what to do, with 86% not scoring at all. Around 9% scored 1 mark for a

correct gradient seen. However many wrote $–1/(5x)$ rather than $(–1/5)\,x$. Substitution of $x = –2$ and $y = 5$ into any equation was seldom seen. A significant number of candidates did not attempt this question at all whilst others attempted to draw a sketch and got no further.

E2. Many candidates knew that they had to draw lines but were unable to interpret the inequality signs as meaning just 1 line, so rectangles as the required region were common. There was some confusion between the line $x = 2$ and the line $y = 2$, but sadly the line $x + y = 6$ was often drawn as the two lines $x = 6$ and $y = 6$. Candidates who drew the correct lines often had no difficulty in identifying the correct region.

E3. Part (a) was answered correctly by almost 60% of the candidates.

Many candidates attempted to solve the simultaneous equations using an algebraic method instead of using the graphs. Most of these attempts were unsuccessful. Part (b) was answered correctly by less than half of the candidates. Many who did not give a fully correct equation were awarded one mark for an equation with either a correct gradient or a correct intercept.