

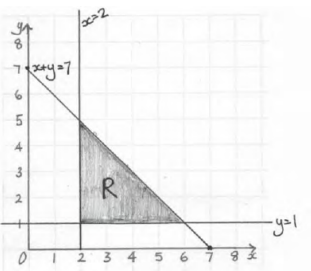
1	See appendix 1		3	M1	for $y = x$ correctly drawn solid or dashed line accepted
				M1	indep for $x = 4$ and $y = -2$ correctly drawn solid or dashed line accepted
		Correct region identified		A1	for correct region identified region may be shaded or left unshaded Condone missing label if region is clear and no contradictory labels
					Total 3 marks

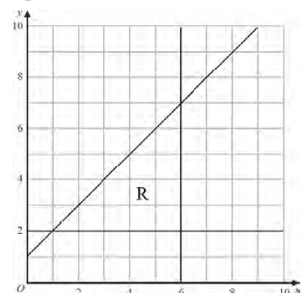
2	(a)		-1, 0, 1, 2, 3, 4	2	B2	B1 for - 2, -1, 0, 1, 2, 3, 4 or -1, 0, 1, 2, 3
	(b)		$y \leq 6$ oe $x + y \geq 5$ oe $y \geq x - 3$ oe	2		B2 for 3 correct inequalities B1 for 2 correct inequalities SC B2 for $y \geq 6$ oe <u>and</u> $x + y \leq 5$ oe <u>and</u> $y \leq x - 3$ oe (In all cases allow < in place of \leq , and > in place of \geq)
						Total 4 marks

3			$x \geq -1$ oe $x + y \leq 4$ oe $y \geq \frac{1}{3}x - 2$ oe	3	B3 for all 3 correct inequalities (B2 for two correct inequalities B1 for one correct inequality) (SC B3 for $x \leq -1$, $x + y \geq 4$ and $y \leq \frac{1}{3}x - 2$ oe) (If no marks gained B1 for understanding of equation $x + y = 4$ e.g. $y > 4 - x$) Accept < for \leq and > for \geq throughout
					Total 3 marks

4		$y \geq 1$ oe $x \leq 3$ oe $y \leq 3x - 2$ oe	3	B1 Allow $1 \leq y \leq 7$ B1 Allow $1 \leq x \leq 3$ B1 Condone < and > in place of \leq and \geq throughout. SC B1 if no marks awarded, recognition of lines $x = 3$ and $y = 1$. Allow incorrect inequality and condone use of equals signs eg $y < 1$, $x = 3$ may be seen on diagram.
Total 3 marks				

5	(a)(i)		Correct line	1	B1 For $x = 1.5$ drawn
	(ii)		Correct line	1	B1 For $y = x$ drawn
	(iii)		Correct line	1	B1 For $x + y = 6$ drawn
	(b)		Correct region	1	B1 dep on B3 for correctly indicating the region R accept unlabelled or unshaded if clear. Shading can be 'in' or 'out'.
Total 4 marks					

6	(a)(i)		3	B1 $y = 1$ drawn B1 $x = 2$ drawn B1 $x + y = 7$ drawn Allow dashed lines or solid lines for graphs condone lack of labels if unambiguous
	(b)			
		Line length 2cm + but shaded area must be enclosed for the mark in (b)	1	B1 correct region indicated – shaded in or out – labelled R or clear intention to be the required region (ft only for one vertical line, one horizontal line and one line with a negative gradient)
Total 4 marks				

7	(b)	Lines (solid or dashed) $x = 6$ and $y = 2$ drawn	3	B1 The lines $x = 6$ and $y = 2$ should extend far enough to intersect with each other.
		Line (solid or dashed) $y = x + 1$ drawn		B1 The line should extend from at least $x = 1$ to $x = 6$ or far enough to intersect with their horizontal and vertical lines.
		Region R shown (shaded or not shaded) 	Correct region identified	B1 dep on B2

8		$x \geq -1$	1	B1 oe condone $>$ in place of \geq
		$y \geq x$	1	B1 oe condone $>$ in place of \geq
		$x + 2y \leq 8$	1	B1 oe condone $<$ in place of \leq
				SCB1 if all inequalities reversed
Total 3 marks				

9		$2x + y \leq 6$ $2y \leq 5x + 1$ $3y + 2x \geq 4$	3	B3 oe for all three correct (B2 oe for any two correct) (B1 oe for any one correct) $2x + y \leq 6$ equivalent to $y \leq -2x + 6$ oe $2y \leq 5x + 1$ equivalent to $y \leq 2.5x + 0.5$ oe $3y + 2x \geq 4$ equivalent to $y \geq -\frac{2}{3}x + \frac{4}{3}$ oe Allow the following inequalities $2x + y < 6$ oe $2y < 5x + 1$ oe $3y + 2x > 4$ oe
Total 3 marks				

10	(b)	$y \geq 2$ $x \leq 6$ $y \leq x$	3	B3 for all 3 correct Allow $2 \leq y$, $6 \geq x$ and $x \geq y$ B2 for 2 correct B1 for 1 correct Allow $<$ and $>$ signs SCB2: $y \leq 2$, $y \geq x$ and $x \geq 6$ (for all 3) Allow $<$ and $>$ signs
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11		$x \leq 1$	4	B1 accept $x < 1$
		$y \geq -2$		B1 accept $y > -2$
	$y = 2x + c$ or $y = mx + 4$			M1 allow = or < or ≤ or > or ≥
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	$y \leq 2x + 4$		A1 oe, allow $y < 2x + 4$ oe
				SCB2 for the correct inequalities with all inequality signs the wrong way round
				Total 4 marks