Mark scheme

Inequalities and regions

Mathematics 0580 · Questions from Paper 1, Paper 2 and Paper 4

Total marks

30

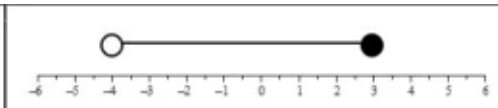
MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
2	2	2	2	3	3	3	4	4	5	**30**

Question 1 **[2]**

1	–3, –2, –1, 0, 1, 2	**2**	**B1** for 5 correct and none incorrect or 6 correct and one extra

Question 2 **[2]**

2		**2**	**B1** for open circle at –4 **and** closed circle at 3 or for a line between –4 and 3 (any circles)

Question 3 **[2]**

3	$x \geqslant 2$ final answer	**2**	**M1** for $12x - 4x \geq 13 + 3$ oe

Question 4 **[2]**

4	$[a =] -1$ $[b =] 5$ $[c =] 1$ $[d =] 4$	**2**	**B1** for two or three correct or **SC1** for $[a =] x \geqslant -1$ $[b =] x \leqslant 5$ $[c =] y \geqslant 1$ $[d =] y \leqslant 4$

STEM | Exam Builder

Question 5 **[3]**

5(a)	$-4 \leqslant x < 3$	**2**	**B1** for $-4 \leqslant x$ or $x < 3$
5(b)	–3 cao	**1**	

Question 6 **[3]**

6	$x \leqslant 1$ final answer	**3**	**M1** for $20 - 15x \geqslant 6 - x$ or $4 - 3x \geqslant \frac{6}{5} - \frac{x}{5}$ **M1** for correctly isolating terms in x FT *their* first step of dealing with the 5 $20 - 6 \geqslant -x + 15x$ or $-3x + \frac{x}{5} \geqslant \frac{6}{5} - 4$

Question 7 **[3]**

7	$y > 2$ oe final answer $y \geqslant 3 - x$ oe final answer	**3**	**B1** for $y > 2$ oe final answer **B2** for $y \geqslant 3 - x$ oe final answer or **B1** for $y = 3 - x$ oe soi or **SC2** for $y \geqslant 2$ oe **and** $y > 3 - x$ oe final answer

Question 8 **[4]**

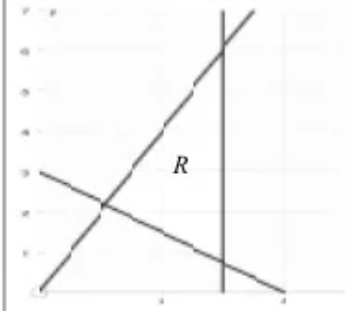
8(a)	$-3 < x \leqslant 2$	**2**	**B1** for $-3 < x$ or $x \leqslant 2$
8(b)	–1, 0, 1, 2, 3, 4	**2**	**B1** for 5 correct (and no extras) or 6 correct with one extra or **B1** for $-2 < x \leqslant 4$

Question 9 **[4]**

9	$y = 5$ ruled $y = x + 1$ ruled Correct region indicated	**4**	**B2** for two correct lines or **B1** for one correct line **B2** for indication of correct region or **B1** for shading that satisfies two of the inequalities

STEM | Exam Builder

Question 10 [5]

10	Correct shading with three ruled accurate solid boundary lines 	**5**	**B2** for $3x + 4y = 12$ line through (0, 3) and (4, 0) or **B1** for a diagonal line through one of these points **B1** for $y = 2x$ line through (0, 0) and (1, 2) or through (1, 2) and (3, 6) **B1** for $x = 3$ line

STEM | Exam Builder