

1.

(i) Solve.

$$5x + 1 > x + 13$$

(i) ----- [3]

(ii) Write down the largest integer that satisfies $5x - 1 < 10$.

(ii) ----- [1]

2. Solve.

(i) $12x = 60$

(i) $x =$ _____

[1]

(ii) $8x - 12 = 24$

(ii) $x =$ _____

[2]

(iii) $4x > 8$

(iii) _____

[1]



3(a). Solve.

(i) $y - 1 > 7$

(i)..... [1]

(ii) $2w < 8$

(ii)..... [1]



(b). You are given that $5 \leq x < 9$ and that x is a whole number.

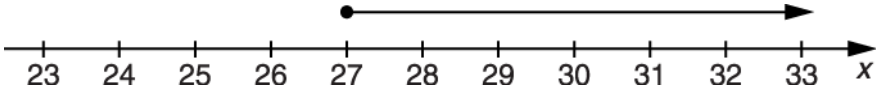
Tick the set of all possible values of x .

5, 8	
5, 9	
6, 7, 8	
5, 6, 7, 8	
5, 6, 7, 8, 9	

[1]



4(a). Complete the inequality that is represented on this number line.



x [1]



(b). Solve this inequality.

$$x + 3 < 11$$

[1]



(c). Find the smallest **whole** number that satisfies this inequality.

$$x - 1 \geq 4.6$$

----- [2]

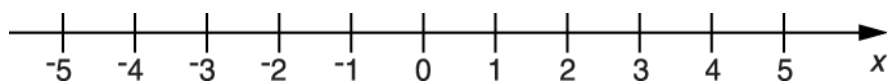


5(a). Solve this inequality.

$$3x - 4 \leq 8$$

----- [2]

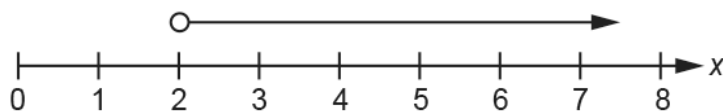
(b). Represent your solution on the number line.



[1]

6.

Write down the inequality for x that is shown on this number line.



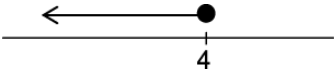
----- [1]

END OF QUESTION PAPER

Question			Answer/Indicative content	Marks	Part marks and guidance	
1		i	$x > 3$	3	M1 for $4x$ soi M1 for 12 soi	
		ii	2	1		
			Total	4		
2		i	5	1		
		ii	4.5 or $4\frac{1}{2}$ or $\frac{9}{2}$	2	M1 for $8x = 36$ or $k/8$ after $8x = k$	36/8 scores M1
		iii	$x > 2$	1		Examiner's Comments The equations were generally solved correctly especially the simple example in (i). Incorrect answers in (ii) more often resulted from a failure to re-arrange correctly and obtaining $8x = 12$ as a first step. The idea of inequalities was only understood, and correctly annotated, by the very best candidates and $x = 2$ or single figures of 2 and 3 were the most common responses.
			Total	4		
3	a				<u>Examiner's Comments</u> This was poorly answered with few scoring marks. Most gave a single digit answer for parts (i) and (ii). Sometimes this was in the correct domain but this was somewhat random.	
		i	$y > 8$	1		
		ii	$w < 4$	1		

Question			Answer/Indicative content	Marks	Part marks and guidance	
	b		Fourth box indicated only	1	<u>Examiner's Comments</u> Many candidates mistook the instruction to 'tick the set of all possible values for ' to mean 'tick all the sets that contain possible values of ' and ticked multiple boxes to score no marks.	
			Total	3		

Question			Answer/Indicative content	Marks	Part marks and guidance	
4	a		$x \geq 27$	1	<p>Condone $x > 27$</p> <p><u>Examiner's Comments</u></p> <p>Pleasingly, this question was well answered.</p> <p>The common errors on the diagram were to reverse the inequality or to include 33 (or 34) as the endpoint.</p>	
	b		$x < 8$	1	<p>Condone $x \leq 8$</p> <p><u>Examiner's Comments</u></p> <p>Candidates made a variety of slips, sometimes just giving the answer 8.</p>	
	c		6	2	<p>M1 for $x > 4.6 + 1$ or better or for one correct substitution of an integer in LHS and evaluation eg $8 - 1 = 7$ Or B1 for 5.6 seen</p> <p><u>Examiner's Comments</u></p> <p>Many gained a mark for showing 5.6 or a complete substitution.</p> <p>However, 5 was a common wrong answer.</p>	
			Total	4		

Question			Answer/Indicative content	Marks	Part marks and guidance	
5	a		$x \leq 4$	2	<p>M1 for $3x \leq 8 + 4$ or better AND</p> <p>M1 for $x \leq \frac{b}{a}$ after $ax \leq b$ seen</p> <p>max 1 mark if answer incorrect OR SC1 for answer 4 or $x \dots 4$ with any incorrect equality or inequality symbol or answer $3 \times 4 - 4 \leq 8$</p> <p>Examiner's Comments</p> <p>Manipulating inequalities was only understood by a very small minority. Some obtained a mark by using equation solving techniques to solve $3x - 4 = 8$, obtaining a solution involving 4 in some way.</p>	<p>Condone use of = or incorrect inequality symbol in place of \leq for all method marks</p> <p>$a \neq 1, b \neq 0$</p> <p>condone e.g. '4 or less' as answer for SC1</p>
	b			1	<p>FT <i>their</i> inequality in (i)</p> <p>Examiner's Comments</p> <p>As there were few correct solutions in part (a), there were consequently few correct solutions.</p>	<p>Condone any indication at 4 Condone missing arrow at other end but do not accept indication of the line terminating Accept any length line</p>
			Total	3		
6			$x = 2$	1	<p> Allow $2 < x$</p> <p>Examiner's Comments</p> <p>Part (b) caused difficulty for many candidates with very few able to state that $x = 2$.</p>	
			Total	1		