

Linear Inequalities and Set Notation

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **27**

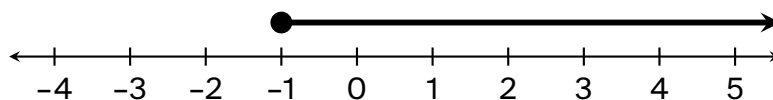
Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 Solve $7x - 4 > 3x + 10$

.....
(2)

(Total for Question 1 is 2 marks)

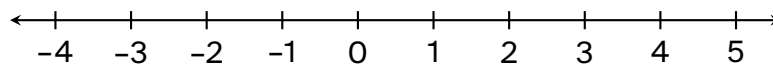
2 (a) Write down the inequality shown on this number line.



.....
(1)

(b) $t > -3$ and $t \leq 2$

On the number line below, show all the values of t that satisfy both inequalities.



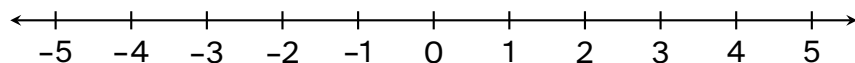
(1)

(Total for Question 2 is 2 marks)

3 (a) Solve $-7 < 3x - 1 \leq 8$

.....
(2)

(b) Represent your solution to part (a) on the number line.



(2)

(c) Write down all the integers that satisfy $-7 < 3x - 1 \leq 8$

.....
(1)

(Total for Question 3 is 5 marks)

4 Solve $3 - \frac{2x}{5} > 7$

.....
(3)

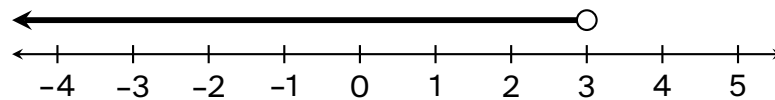
(Total for Question 4 is 3 marks)

- 5 Solve $\frac{3 - 2x}{4} \geq -2$
Write your answer using set notation.

.....
(3)

(Total for Question 5 is 3 marks)

- 6 Kwame solves the inequality $2x - 5 \geq 1$
He shows his solution on this number line.



Kwame's number line is wrong.
Give two reasons why.

.....
(2)

(Total for Question 6 is 2 marks)

- 7 Work out the smallest integer n that satisfies the inequality $4(n + 3) > 27$

.....
(2)

(Total for Question 7 is 2 marks)

- 8** $\xi = \{\text{integers from 1 to 12}\}$
 $A = \{x: 2x + 3 > 11\}$ $B = \{x: 3x \leq 27\}$
 List the members of $A \cap B$.

.....
 (3)

(Total for Question 8 is 3 marks)

- 9** a and b are positive integers.
 $a + 2b = 13$ and $a > b$
 Find all the possible values of a .

.....
 (2)

(Total for Question 9 is 2 marks)

- 10** A rectangle has length $(2x + 3)$ cm and width x cm.
 The perimeter of the rectangle is more than 24 cm and less than 48 cm.
 Find the range of possible values of x .
 You must show all your working.

.....
 (3)

(Total for Question 10 is 3 marks)
