

# Inequalities on a Number Line

Please write clearly in block capitals

Forename:

Surname:

## Materials

For this paper you must have:

- mathematical instruments



You must **not** use a calculator.

## Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

## Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

## Advice

- In all calculations, show clearly how you work out your answer.

**1(a)** Which value for  $x$  will satisfy the following inequality?

(Level 4)

$$6 > x \geq -5$$

[1 mark]

$x = -10$

$x = -1$

$x = 6$

$x = 10$

**1(b)** Which inequality is satisfied by  $x = 3$ ?

[1 mark]

$x \leq -3$

$x > -2$

$3 > x > -9$

$x > 3$

**1(c)** Which inequality is equivalent to the following?

$$6x - 3 < 2x + 9$$

[1 mark]

$x < \frac{6}{8}$

$x > 3$

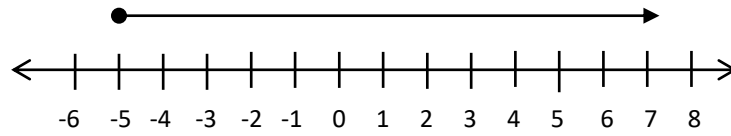
$x < 3$

$x > \frac{6}{8}$

Turn over for next question

2(a) Give the inequality described on the number line below.

(Level 4)

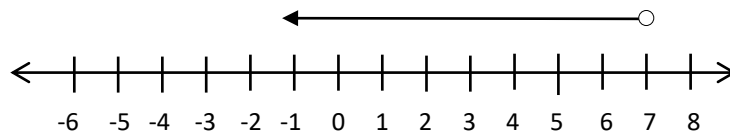


[2 marks]

Answer \_\_\_\_\_

2(b) Give the inequality described on the number line below.

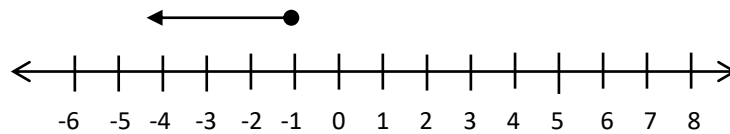
[2 marks]



Answer \_\_\_\_\_

2(c) Give the inequality described on the number line below.

[2 marks]

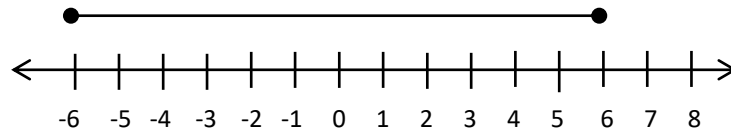


Answer \_\_\_\_\_

Turn over for next question

**3(a)** Give the inequality described on the number line below.

(Level 4)

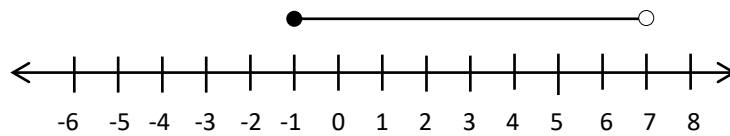


[2 marks]

Answer \_\_\_\_\_

**3(b)** Give the inequality described on the number line below.

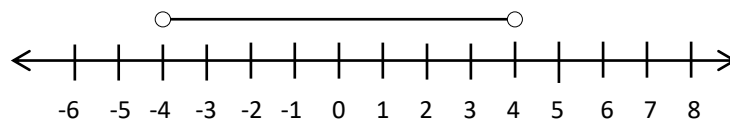
[2 marks]



Answer \_\_\_\_\_

**3(c)** Give the inequality described on the number line below.

[2 marks]



Answer \_\_\_\_\_

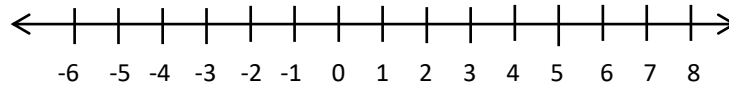
Turn over for next question

**4(a)** Label the number line that describes the following inequality:

(Level 4)

$$x < 4$$

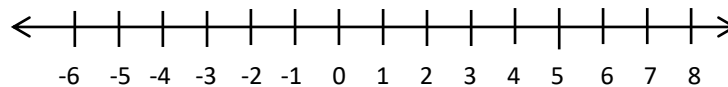
[2 marks]



**4(b)** Label the number line that describes the following inequality:

$$x \geq -1$$

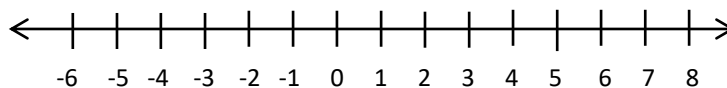
[2 marks]



**4(c)** Give the inequality described on the number line below.

$$-2 \leq x \leq 8$$

[2 marks]

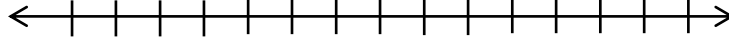


Turn over for next question

- 5 Labelling the number line accordingly, display the following inequality on the number line below. (Level 4)

$$-0.7 < x \leq -0.1$$

[2 marks]




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Answer \_\_\_\_\_



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**6** In order to be profitable, a bus company requires a certain number of passengers for each tour; however, the bus can only hold so many seated passengers. (Level 5)

**6(a)** Write an inequality for a bus,  $b$ , if the company requires **more than 6** passengers to be profitable but can only hold 54 passengers.

[3 marks]

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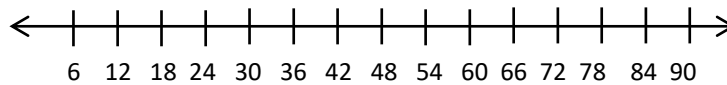


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Answer \_\_\_\_\_

**6(b)** Label the number line to describe this inequality.

[2 marks]



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