

Inequalities on a Number Line

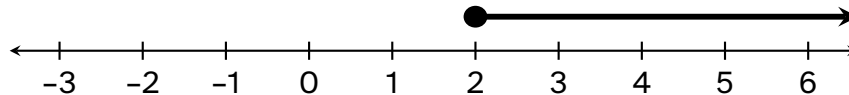
For AQA GCSE Mathematics (8300) • Foundation tier

Name _____

Total marks: **25**

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

1 Here is a number line.



Circle the inequality shown.

[1 mark]

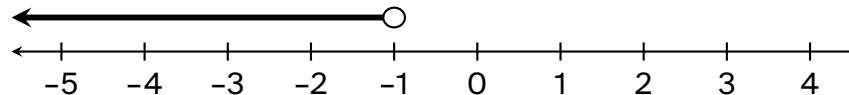
$x > 2$

$x \geq 2$

$x < 2$

$x \leq 2$

2 Here is a number line.



Circle the inequality shown.

[1 mark]

$x > -1$

$x \geq -1$

$x < -1$

$x \leq -1$

- 3 (a) A minibus can carry no more than 16 passengers.
 p is the number of passengers on the minibus.
Circle the inequality for p .

[1 mark]

$$p < 16$$

$$p \leq 16$$

$$p > 16$$

$$p \geq 16$$

- (b) The temperature inside a freezer is always below -18°C .
 t is the temperature, in $^{\circ}\text{C}$, inside the freezer.
Circle the inequality for t .

[1 mark]

$$t < -18$$

$$t \leq -18$$

$$t > -18$$

$$t \geq -18$$

- (c) A youth club is open to people aged from 11 to 16 inclusive.
 a is the age, in years, of a member.
Circle the inequality for a .

[1 mark]

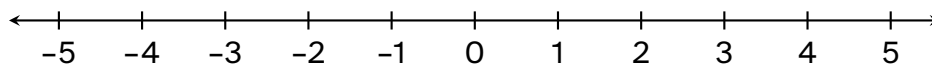
$$11 < a < 16$$

$$11 \leq a < 16$$

$$11 \leq a \leq 16$$

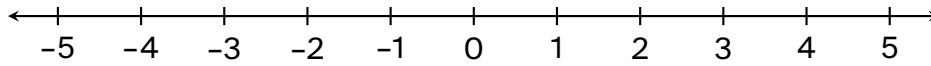
$$11 < a \leq 16$$

- 4 Represent $x \geq -2$ on the number line.



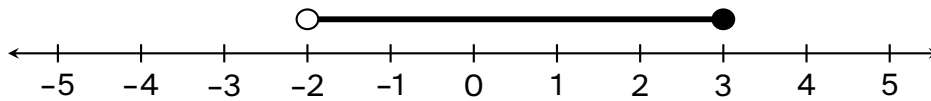
[1 mark]

- 5 Represent $-4 < x < 2$ on the number line.



[1 mark]

- 6 Here is a number line.

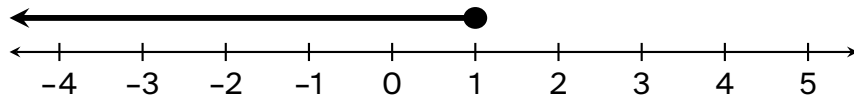


Write down the inequality represented by the number line.

[2 marks]

Answer _____

7 Here is a number line.



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

[1 mark]

Answer _____

(b) Write down the largest integer that satisfies this inequality.

[1 mark]

Answer _____

8 Circle the value of x that satisfies $5 < x < 6$

[1 mark]

5

5.9

6

6.1

9 Tick **one** box for each statement.

[2 marks]

$$-4 < -2$$

$$0 > -1$$

$$-5 \geq -3$$

$$3 \leq 3$$

True

☐☐☐☐

False

☐☐☐☐

- 10 Write down all the integers that satisfy the inequality $0 < n \leq 4$

[1 mark]

Answer _____

- 11 x is an integer.

$$x > -5 \quad \text{and} \quad x \leq -1$$

Write down all the possible values of x .

[2 marks]

Answer _____

- 12 The integers $-2, -1, 0, 1$ and 2 are the **only** integers that satisfy an inequality.
Circle the inequality.

[1 mark]

$-2 < x < 2$

$-3 < x \leq 2$

$-3 \leq x \leq 2$

$-2 < x \leq 3$

- 13 Zak says,

‘There are 5 integers that satisfy $-1 \leq x < 3$ ’

Is Zak correct? Tick a box.

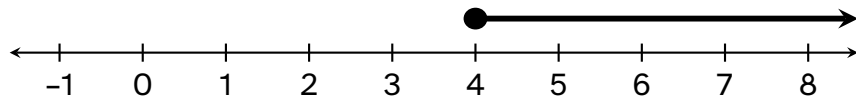
Give a reason for your answer.

[1 mark]

☐ Yes

☐ No

- 14** Dan has solved the inequality $3x > 12$ and shown his solution on the number line below.



Give **one** reason why Dan's number line is wrong.

[1 mark]

- 15** n is an integer.

$$-6 < 2n \leq 4$$

Work out all the possible values of n .

[2 marks]

Answer _____

- 16** Here are two inequalities.

$$-4 \leq a < 2$$

$$1 < b \leq 6$$

a and b are integers.

Work out the smallest possible value of ab

[3 marks]

Answer _____