

GCSE Maths: Inequalities on a number line (Higher): answers

GCSE Maths - Inequalities - Higher - Lesson 10.2

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch10-inequalities/higher/inequalities-on-a-number-line/

Exercise 10B Number lines Non-calculator

1 Write down the inequality shown on each number line.



Answer: $x < 2$



Answer: $x \geq -1$



Answer: $x \leq -3$

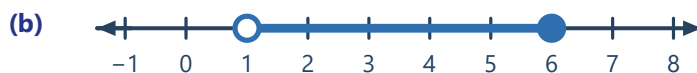


Answer: $x > 0$

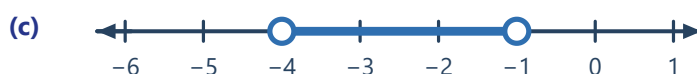
2 Write down the inequality shown on each number line. Use x for the letter.



Answer: $-2 \leq x \leq 3$



Answer: $1 < x \leq 6$



Answer: $-4 < x < -1$



Answer: $0 \leq x < 5$

3 Show each inequality on a number line.

(a) $x > 3$

Answer: an open circle at 3 with an arrow pointing right

(b) $x \leq -1$

Answer: a closed (filled) circle at -1 with an arrow pointing left

(c) $x < 0$

Answer: an open circle at 0 with an arrow pointing left

(d) $x \geq 2$

Answer: a closed (filled) circle at 2 with an arrow pointing right

(e) $-1 < x \leq 3$

Answer: an open circle at -1 , a closed (filled) circle at 3, and a line joining them

(f) $2 \leq x < 5$

Answer: a closed (filled) circle at 2, an open circle at 5, and a line joining them

4 Which of these inequalities does this number line show? $x < 3$, $x \leq 3$, $x > 3$, $x \geq 3$



Answer: $x \leq 3$

5 Is 3 a solution of each inequality?

(a) $x > 3$

Answer: No

(b) $x \geq 3$

Answer: Yes

(c) $x < 3$

Answer: No

(d) $x \leq 3$

Answer: Yes

6 Is the number in brackets a solution of the inequality?

(a) $x > -2$ (-1)

Answer: Yes

(b) $x \leq 4$ (4)

Answer: Yes

(c) $x < 0.5$ (1)

Answer: No

(d) $x \geq -3$ (-5)

Answer: No

7 Show each statement on a number line. Use x for the number.

(a) x is at least -2

Answer: $x \geq -2$; a closed (filled) circle at -2 with an arrow pointing right

(b) x is less than 4

Answer: $x < 4$; an open circle at 4 with an arrow pointing left

(c) x is more than 0

Answer: $x > 0$; an open circle at 0 with an arrow pointing right

(d) x is at most 6

Answer: $x \leq 6$; a closed (filled) circle at 6 with an arrow pointing left

8 A lift can carry at most 8 people. Let n be the number of people in the lift. Show the possible values of n on a number line and write an inequality using $\leq$ twice.

Answer: $0 \leq n \leq 8$

9 A ride is only for people whose height h cm is at least 110 cm but less than 195 cm. Write this as an inequality and show it on a number line.

Answer: $110 \leq h < 195$; a closed (filled) circle at 110, an open circle at 195, and a line joining them

10 Zoe says this number line shows $x < 4$.



What mistake has she made? Write down the inequality that is actually shown.

Answer: The circle is closed so 4 is included: it shows $x \leq 4$

11 Explain the difference between $x > 3$ and $x \geq 3$. Say what the number lines look like.

Answer: $x \geq 3$ includes 3 (closed circle); $x > 3$ does not (open circle)

12 Four whole numbers are shown on this number line.



Write down the four numbers, and an inequality for n using $\leq$ twice.

Answer: $-2, -1, 0, 1$; $-2 \leq n \leq 1$

- 13** This number line shows two separate parts. Write down the inequalities.



Answer: $x \leq -1$ or $x > 3$

- 14** The number line for $x > -1$ and the number line for $x \leq 4$ are drawn together.



Write down the single inequality that gives the values satisfying **both**.

Answer: $-1 < x \leq 4$