

GCSE Maths: Inequality symbols (Foundation): answers

GCSE Maths - Inequalities - Foundation - Lesson 10.1

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch10-inequalities/foundation/inequality-symbols/

Exercise 10A Reading and writing inequalities Non-calculator

1 Write $<$ or $>$ in each gap.

(a) $7 \underline{\hspace{1cm}} 3$

Answer: $>$

(b) $2 \underline{\hspace{1cm}} 9$

Answer: $<$

(c) $-4 \underline{\hspace{1cm}} 1$

Answer: $<$

(d) $-3 \underline{\hspace{1cm}} -8$

Answer: $>$

(e) $0.5 \underline{\hspace{1cm}} 0.25$

Answer: $>$

(f) $-1.5 \underline{\hspace{1cm}} -1.2$

Answer: $<$

2 Write whether each statement is true or false.

(a) $6 > 2$

Answer: True

(b) $-5 > -2$

Answer: False

(c) $4 \leq 4$

Answer: True

(d) $9 \geq 10$

Answer: False

(e) $-3 < -1$

Answer: True

(f) $0 \geq -7$

Answer: True

3 Write each statement as an inequality.

- (a) A lift can carry at most 8 people. Use p for the number of people.

Answer: $p \leq 8$

- (b) You must be at least 14 years old to join. Use a for the age in years.

Answer: $a \geq 14$

- (c) The temperature, t °C, is less than 0°C.

Answer: $t < 0$

- (d) A parcel must weigh no more than 2 kg. Use w for the mass in kg.

Answer: $w \leq 2$

- (e) More than 500 people came to the match. Use n for the number of people.

Answer: $n > 500$

- (f) A pupil needs a minimum of 40 marks to pass. Use m for the marks.

Answer: $m \geq 40$

4 Write each inequality in words, starting with the letter.

- (a) $x > 5$

Answer: x is greater than 5

- (b) $n \leq 3$

Answer: n is less than or equal to 3

- (c) $y \geq 10$

Answer: y is greater than or equal to 10

- (d) $t < 0.5$

Answer: t is less than 0.5

- (e) $a < -4$

Answer: a is less than -4

- (f) $k \geq 0$

Answer: k is greater than or equal to 0

5 Here is an inequality: $x > 3$. Which of these numbers are solutions? 1, 3, 3.1, 5, -4

Answer: 3.1, 5

6 Here is an inequality: $x \leq -2$. Which of these numbers are solutions? -5 , -2 , -1 , 0, -2.5

Answer: -5 , -2 , -2.5

7 Write these numbers in order, smallest first, with the symbol $<$ between each pair: 3, -7 , 0, -2 , 5

Answer: $-7 < -2 < 0 < 3 < 5$

8 On one winter day the temperature in Oslo was -12°C and in Moscow it was -20°C . Write the two temperatures with a $>$ symbol between them, and say which city was warmer.

Answer: $-12^{\circ}\text{C} > -20^{\circ}\text{C}$, so Oslo was warmer

9 Write each rule as an inequality.

- (a) A road sign says the maximum speed is 40 mph. Use s for the speed in mph.

Answer: $s \leq 40$

- (b) A ride needs the rider's height, h cm, to be at least 120 cm.

Answer: $h \geq 120$

- (c) A café has fewer than 25 customers. Use c for the number of customers.

Answer: $c < 25$

- (d) A school needs over 90 volunteers. Use v for the number of volunteers.

Answer: $v > 90$

10 The speed limit on a road is 40 mph, so a driver's speed, s mph, must satisfy $s \leq 40$. Four cars are travelling at 38 mph, 40 mph, 43 mph and 39.5 mph. Which cars are obeying the limit?

Answer: 38 mph, 40 mph, 39.5 mph

11 An airline allows bags of at most 23 kg. So a bag's mass, w kg, must satisfy $w \leq 23$. Which of these bags are allowed? 22.8 kg, 23 kg, 23.1 kg, 21.5 kg

Answer: 22.8 kg, 23 kg, 21.5 kg

12 Write down all the whole numbers n that satisfy each inequality.

- (a) $2 < n < 6$

Answer: 3, 4, 5

- (b) $-3 \leq n < 1$

Answer: -3, -2, -1, 0

- (c) $0 < n \leq 4$

Answer: 1, 2, 3, 4

- (d) $-5 < n < -1$

Answer: -4, -3, -2

13 Explain why $5 \leq 5$ is a true statement, but $5 < 5$ is false.

Answer: $\leq$ allows "equal to"; $<$ does not

14 Amir writes $-9 > -3$. Is he correct? Give a reason.

Answer: No. $-9 < -3$, because -9 is further to the left on a number line

15 Ben writes "x is no more than 7" as $x \geq 7$. Explain his mistake and write the correct inequality.

Answer: $x \leq 7$

16 Write an inequality whose only whole-number solutions are 4, 5 and 6.

Answer: For example $3 < n < 7$ (or $4 \leq n \leq 6$)

17 n is a positive whole number and $n^2 < 20$. Write down all the possible values of n .

Answer: 1, 2, 3, 4