Linear Inequalities

GCSE Maths · Foundation tier · 16 questions · 40 marks

Name _____ Date _____ Score _____ / 40

Start at Level 1 and climb. Stuck? The worked answers show every step.

Level 1 · Warm-up | Level 2 · Build | Level 3 · Exam-style | Level 4 · Challenge (Foundation)

Level 1 · Warm-up

10 marks

One- and two-step inequalities, and listing integers in a range.

1 Solve $3x - 5 > 7$. [2 marks]

Answer _____

2 Solve $\frac{x}{2} + 3 \leq 8$. [2 marks]

Answer _____

3 Solve $4(x + 1) < 20$. [2 marks]

Answer _____

4 Write down all the integers n such that $-2 \leq n < 3$. [2 marks]

Answer _____

5 Solve $5x + 2 \geq 2x + 17$. [2 marks]

Answer _____

Level 2 · Build 10 marks
Negative coefficients, double inequalities, and a first look at set notation.

6 Solve $7 - 2x > 1$. [2 marks]

Answer _____

7 Solve $-1 < 2x + 3 \leq 9$. [3 marks]

Answer _____

8 List all the integers x that satisfy $5 \leq 3x - 1 < 14$. [3 marks]

Answer _____

9 Find the smallest integer that satisfies $4x - 3 > 11$. [2 marks]

Answer _____

Level 3 · Exam-style 11 marks
Integer solutions to two inequalities, contexts and spotting mistakes.

10 n is an integer. $2n + 5 > 9$ and $3n - 4 < 14$. Find all the possible values of n. [3 marks]

Answer _____

11 A taxi charges £4 plus £2 for every mile. Ella has £25. What is the greatest whole number of miles she can travel? [3 marks]

Answer _____

12 Tom solves $6-3x < 12$. He writes $-3x < 6$, so $x < -2$. Explain Tom's mistake, and give the correct answer. [2 marks]

Answer _____

13 A rectangle has sides of length x cm and $(x+4)$ cm. Its perimeter is less than 40 cm. Find the range of possible values of x. [3 marks]

Answer _____

Level 4 · Challenge (Foundation) — 9 marks

Grade 4–5 problem solving: inequalities from budgets, shapes and number puzzles.

14 A school trip costs £300 for the coach plus £12 for each student. The budget is at most £800. What is the greatest number of students who can go? [3 marks]

Answer _____

15 Sam thinks of a whole number. Three times the number, subtract 4, is more than 11. Twice the number, add 1, is less than 15. What is Sam's number? [3 marks]

Answer _____

16 A rectangle has width x cm and length $2x$ cm. Its perimeter must be at least 24 cm and at most 42 cm. Find the range of possible values of x. [3 marks]

Answer _____