Linear inequalities

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Solve $3x - 5 \leq 16$. [2 marks]

Add 5, then divide by 3.

Answer: $x \leq 7$.

2. Solve $10 - 4x > 22$. [2 marks]

$-4x > 12$; dividing by negative 4 reverses the symbol.

Answer: $x < -3$.

3. A venue holds no more than 90 people. Adult and child bookings are a and c. Write a restriction. [2 marks]

No more than includes the maximum.

Answer: $a + c \leq 90$.

4. A minimum revenue of AUD 180 is needed. Standard items earn AUD 12 and deluxe items AUD 20. Write the restriction. [2 marks]

Minimum means at least.

Answer: $12x + 20y \geq 180$.

5. Does $(4, 3)$ satisfy both $2x + y \leq 12$ and $x + 2y \geq 11$? [2 marks]

The first sum is 11, but the second is 10, below the required 11.

Answer: No.

6. For $x + y < 8$, is $(3, 5)$ allowed? [2 marks]

Its sum equals 8 and the strict inequality excludes equality.

Answer: No.