One-variable inequalities

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Solve $x + 4 < 9$. [2 marks]

Subtract 4.

Answer: $x < 5$

2. Solve $3x - 2 \geq 10$. [2 marks]

$3x \geq 12$; divide by 3.

Answer: $x \geq 4$

3. Solve $-5x \leq 20$. [2 marks]

Divide by -5 and reverse the direction.

Answer: $x \geq -4$

4. Solve $2(x + 3) > 5x - 9$. [2 marks]

$2x + 6 > 5x - 9$ gives $15 > 3x$.

Answer: $x < 5$

5. Solve $-\frac{x}{2} \geq 3$ and describe its number-line representation. [3 marks]

Multiply by -2 and reverse the inequality.

Answer: $x \leq -6$; filled circle at -6, shading left.

6. A venue charges a fixed 30 dollars plus 8 dollars per guest. The budget is at most 110 dollars. Find the largest possible whole number of guests. [3 marks]

$30 + 8n \leq 110$ gives $n \leq 10$; guests are nonnegative whole numbers.

Answer: 10 guests.