Writing and Graphing One-Variable Inequalities: Phrase to Number Line

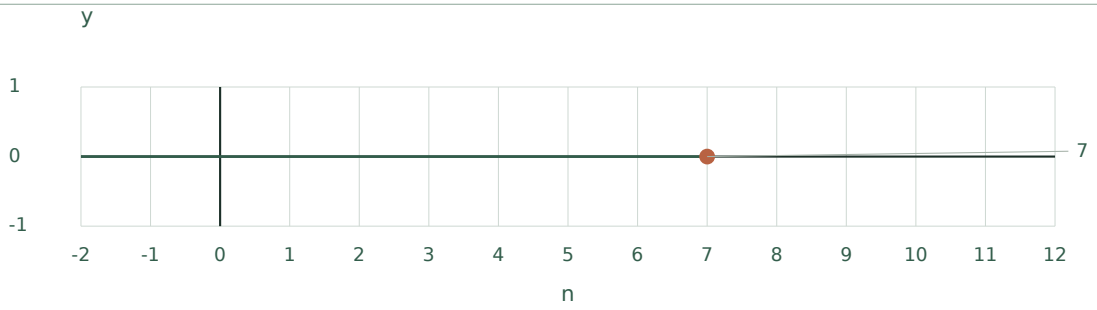
Original worked example / unchanged complete key

Prompt: Translate and solve: four less than twice a number is at most ten. Then graph the solution on a number line.

Answer: Let n be the number. Twice the number is 2n, and four less than that is 2n - 4. At most ten gives $2n - 4 \leq 10$. Add 4 to both sides: $2n \leq 14$. Divide by 2: $n \leq 7$. On a number line, place a closed circle at 7 and draw an arrow to the left. Check n = 0: 2(0) - 4 = -4, and $-4 \leq 10$ is true. Check the boundary n = 7: 2(7) - 4 = 10, and $10 \leq 10$ is true, so the closed circle is correct.

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Solution graph: n ≤ 7 on a number line



Closed circle at 7 with arrow to the left; boundary included. Coordinate labels sit outside the plot; thin grey leaders are annotations, not function curves.