

Solving Inequalities: math test solutions, Grade 7 – download the PDF

Test solutions with the detailed point scale. Add up your points and spot what to review.

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 Symbols and values

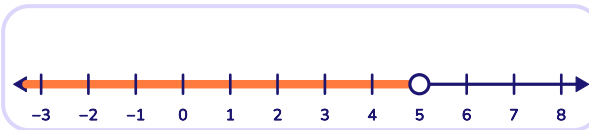
/ 4 pts

- a. $n \leq 15$. (1 pt)
- b. False: -7 is to the right of -9 , so $-7 > -9$. (1 pt)
- c. $2(3) + 1 = 7$ and $7 \geq 7$ is true, so yes. (1 pt)
- d. $4 - (-2) = 6$ and $6 < 5$ is false, so no. (1 pt)

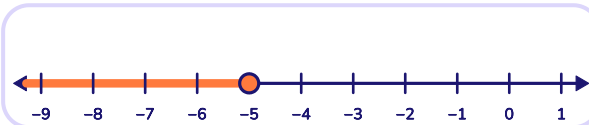
2 Solve and graph

/ 4 pts

(a) $4x < 20$, so $x < 5$ (1 pt). Open circle at 5, shade left (1 pt).



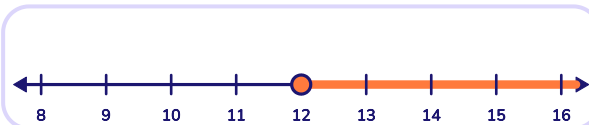
(b) Subtract 4: $-3x \geq 15$. Divide by -3 and flip: $x \leq -5$ (1 pt). Closed circle at -5 , shade left (1 pt).



3 Negative coefficient with a fraction

/ 3 pts

Subtract 6: $-\frac{x}{3} \leq -4$ (1 pt). Multiply by -3 and flip the sign: $x \geq 12$ (1 pt). Check: $x = 15$ gives $6 - 5 = 1 \leq 2$, true (1 pt).



4 Gym membership

/ 4 pts

Total cost $20 + 18m$; at most 200: $20 + 18m \leq 200$ (1 pt). Subtract 20: $18m \leq 180$ (1 pt). Divide by 18: $m \leq 10$ (1 pt). Sam can stay a member for at most 10 months, which costs exactly 200 dollars (1 pt).

5 Error analysis

/ 3 pts

She divided by -5 but did not reverse the sign (1 pt). Correct: $x > -7$ (1 pt). Check with $x = 0$: $0 < 35$ is true, whereas $x = -10$ gives $50 < 35$, false (1 pt).

6 Whole-number solutions

/ 2 pts

$3x < 16$, so $x < 5.33 \dots$ (1 pt). With $x \geq 2$, the whole numbers are 2, 3, 4, 5 (1 pt).



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