LESSON MAKER PRO

Where Values Fit

Solve inequalities and show which values work.

GRADE 8 · 8.AT.B.4.b

8.AT.B.4.b "Represent the solution set on a number line and describe the set of possible values in the context of the problem."

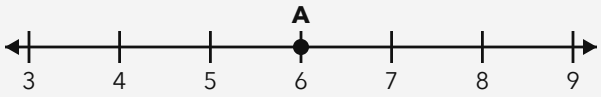
NAME _____ DATE _____

MARK THE SOLUTION

Solve the inequality, then mark its boundary on a number line. Use a filled dot for <= or >= and an open dot for < or >. Shade toward the values that work.

WORKED EXAMPLE

Solve x + 9 >= 15. Is point A included? Show the solutions on the line.



1. Subtract 9 from both sides.
2. x >= 6
3. A is at 6, so place a filled dot there and shade right.

Answer: x >= 6; A is included.

PRACTICE 4 problems

1 Solve x + 2 < 10. Sketch the solutions on a number line.

ANSWER _____

2 Solve x - 3 >= -1. Sketch the solutions on a number line.

ANSWER _____

3 Solve 4x > 20. Sketch the solutions on a number line.

ANSWER _____

4 Solve -2x <= 14. Sketch the solutions on a number line.

ANSWER _____

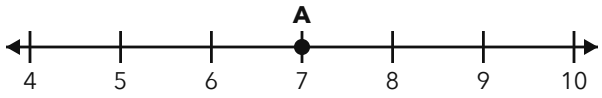
APPLY IT Show your work

1 You have $13. A game pass costs $5 plus x dollars for add-ons. Show the possible add-on costs on the line. Is A allowed? Describe the costs.



ANSWER _____

2 A watch-time badge requires at least 19 minutes. You have watched 12 minutes. Let x be more minutes you watch. Show the possible x values on the line. Is A allowed?



ANSWER _____

CHALLENGE One step up

A club charges $3 to join and $2 per event. You plan to spend at least $13 but no more than $21. Let x be the number of events. Solve, sketch the solutions on a number line, and list the possible event counts.

WORK SPACE AND ANSWER

ANSWER KEY

Where Values Fit

GRADE 8 · 8.AT.B.4.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve x + 2 < 10. Sketch the solutions on a number line.	**x < 8; open dot at 8, shade left.**
2	Solve x - 3 >= -1. Sketch the solutions on a number line.	**x >= 2; filled dot at 2, shade right.**
3	Solve 4x > 20. Sketch the solutions on a number line.	**x > 5; open dot at 5, shade right.**
4	Solve -2x <= 14. Sketch the solutions on a number line.	**x >= -7; filled dot at -7, shade right.**

PART 2 · APPLY IT

1. **0 <= x <= 8; filled dots at 0 and A, shade between them. A is allowed. Add-ons can cost from $0 to $8.** The budget gives 5 + x <= 13, so x <= 8. An add-on cost cannot be negative.
2. **x >= 7; filled dot at A, shade right. A is allowed. You must watch at least 7 more minutes.** The badge requires 12 + x >= 19. Subtract 12 to get x >= 7.

CHALLENGE

5 <= x <= 9; filled dots at 5 and 9, shade between them. Possible event counts are 5, 6, 7, 8, and 9.

Accept equivalent number-line sketches with the correct endpoints and shading. For the challenge, the shaded interval shows the inequality, but only whole-number event counts are possible.