

Find the Fit

Test values to see which ones make inequalities true.

GRADE 8 • 8.PFA.5.f

8.PFA.5.f "Identify a numerical value(s) that is part of the solution set of a given inequality."

NAME _____

DATE _____

PART 1: PRACTICE RULE

A number is in an inequality's solution set when replacing x with that number makes a true statement. Substitute the value for x , then simplify. If the comparison is true, the number is a solution.

WORKED EXAMPLE

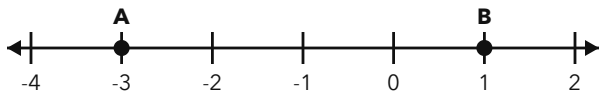
Is $x = 10$ a solution of $x + 4 > 13$?

1. Substitute 10 for x : $10 + 4 > 13$.
2. Add: $14 > 13$.
3. The comparison is true, so 10 is in the solution set.

Answer: Yes, $x = 10$ is a solution.

PRACTICE 6 problems

- 1** The number line marks two values. Which labeled point, A or B, is a solution of $x - 5 \leq -8$?



ANSWER _____

- 2** Which value is a solution of $x / 2 > 3$: $x = 5$ or $x = 9$?

ANSWER _____

- 3** Is $x = 0$ a solution of $-7x < 2$?

ANSWER _____

- 4** Is $x = 8$ a solution of $3x + 1 \geq 16$?

ANSWER _____

- 5** Is $x = -2$ a solution of $9 - x > 7$?

ANSWER _____

- 6** Which value is not a solution of $2x - 1 < 11$: $x = 3$ or $x = 7$?

ANSWER _____

APPLY IT Show your work

- 1** Mika has \$9 saved. She earns \$6 for each lawn she mows and wants at least \$33 for a game pass. The inequality $6x + 9 \geq 33$ models the situation. Is $x = 5$ part of the solution set?

WORK SPACE

ANSWER _____

- 2** A basketball player starts a practice challenge with 12 points. Each round adds 3 points, and the player needs at least 31 points. The inequality $12 + 3x \geq 31$ models the challenge. Is $x = 7$ part of the solution set?

WORK SPACE

ANSWER _____**CHALLENGE** One step up

Without solving the inequality all the way, decide whether $x = -6$ or $x = -2$ is part of the solution set of $-5(x + 1) \geq 15$. Explain your reasoning.

WORK SPACE AND ANSWER

PRACTICE 1

The number line marks two values. Which labeled point, A or B, is a solution of $x - 5 \leq -8$?

A, $x = -3$

PRACTICE 2

Which value is a solution of $x / 2 > 3$: $x = 5$ or $x = 9$?

$x = 9$

PRACTICE 3

Is $x = 0$ a solution of $-7x < 2$?

Yes

PRACTICE 4

Is $x = 8$ a solution of $3x + 1 \geq 16$?

Yes

PRACTICE 5

Is $x = -2$ a solution of $9 - x > 7$?

Yes

PRACTICE 6

Which value is not a solution of $2x - 1 < 11$: $x = 3$ or $x = 7$?

$x = 7$

APPLY IT 1

Yes, $x = 5$ is part of the solution set.
Substitute 5: $6(5) + 9 = 39$. Since $39 \geq 33$, the value is a solution.

APPLY IT 2

Yes, $x = 7$ is part of the solution set.
Substitute 7: $12 + 3(7) = 33$. Since $33 \geq 31$, the value is a solution.

CHALLENGE

$x = -6$ is a solution: $-5(-6 + 1) = 25$, and $25 \geq 15$ is true. For $x = -2$, $-5(-2 + 1) = 5$, and $5 \geq 15$ is false. Therefore $x = -2$ is not a solution.

Accept equivalent substituted comparisons and clear yes or no statements. For the challenge, accept any correct explanation showing that $x = -6$ makes the inequality true and $x = -2$ does not.