

Solution Set Search

Test each value to see if the inequality is true.

GRADE 6 • 6.PFA.4.e

6.PFA.4.e "Identify a numerical value(s) that is part of the solution set of a given inequality in one variable."

NAME _____

DATE _____

TEST THE VALUE

A number is in an inequality's solution set when substituting it for x makes a true statement. Substitute carefully, then decide whether the comparison is true or false. A true comparison means the number is a solution.

WORKED EXAMPLE

Is $x = 8$ part of the solution set of $6x + 5 > 50$?

1. Substitute 8 for x : $6(8) + 5 > 50$.
2. Multiply and add: $48 + 5 > 50$.
3. Compare: $53 > 50$ is true.

Answer: Yes, 8 is part of the solution set.

PRACTICE 6 problems

- 1 Is $x = 4$ part of the solution set of $2x + 1 < 10$?

ANSWER _____

- 2 Which values are part of the solution set of $x - 3 \geq 0$: -2, 0, 3, 7?

ANSWER _____

- 3 Which values make $4x < 13$ true: 1, 3, 4?

ANSWER _____

- 4 Is $x = -1$ part of the solution set of $9 + x \leq 7$?

ANSWER _____

- 5 Which values are part of the solution set of $12 - x > 9$: 0, 2, 3, 4?

ANSWER _____

- 6 Which listed value is not part of the solution set of $x/3 + 2 \leq 4$: 0, 3, 9?

ANSWER _____

APPLY IT Show your work

- 1** At a game club, x is the number of points a player has. A player needs $x + 12 \geq 30$ points to enter a tournament. Which point totals let a player enter: 14, 18, 21?

WORK SPACE

ANSWER _____

- 2** A music app uses 2 MB for each downloaded song and 1 MB for settings. The app must use at most 24 MB, so $2x + 1 \leq 24$. Which numbers of downloaded songs work: 7, 11, 13?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Without solving the inequality for x , test the values -3, 1, 4, and 10. Which values are part of the solution set of $3(x - 2) > 9$? Explain your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Is $x = 4$ part of the solution set of $2x + 1 < 10$?	Yes
2	Which values are part of the solution set of $x - 3 \geq 0$: -2, 0, 3, 7?	3 and 7
3	Which values make $4x < 13$ true: 1, 3, 4?	1 and 3
4	Is $x = -1$ part of the solution set of $9 + x \leq 7$?	No
5	Which values are part of the solution set of $12 - x > 9$: 0, 2, 3, 4?	0 and 2
6	Which listed value is not part of the solution set of $x/3 + 2 \leq 4$: 0, 3, 9?	9

PART 2 • APPLY IT

- 18 and 21** $14 + 12 = 26$, so 14 does not meet the requirement. $18 + 12 = 30$ and $21 + 12 = 33$, so both totals work.
- 7 and 11** $2(7) + 1 = 15$ and $2(11) + 1 = 23$, and both are at most 24. $2(13) + 1 = 27$, so 13 does not work.

CHALLENGE

10. Substituting 10 gives $3(10 - 2) > 9$, or $24 > 9$, which is true. The other listed values make the inequality false.

Accept equivalent wording such as "is a solution" or "is not a solution" for yes or no responses. For list items, students must identify all and only the values that make the inequality true.