

Inequality Value Hunt

Test values to find which ones make an inequality 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 _____

TEST THE VALUE

A number is part of an inequality's solution set if it makes the inequality true. Substitute the number for x , simplify both sides, and decide whether the comparison is true or false.

WORKED EXAMPLE

Is $x = 3$ part of the solution set of $8x - 2 < 23$?

1. Substitute 3 for x : $8(3) - 2 < 23$
2. Simplify: $24 - 2 < 23$
3. Compare: $22 < 23$ is true.

Answer: Yes, $x = 3$ is in the solution set.

PRACTICE 6 problems

- 1** Which value is in the solution set of $x + 9 > 17$? Choose $x = 0$, $x = 1$, or $x = 10$.

ANSWER _____

- 2** Is $x = -4$ part of the solution set of $5x + 6 \geq -15$?

ANSWER _____

- 3** Which value is in the solution set of $-7x < 35$? Choose $x = -9$, $x = -5$, or $x = -1$.

ANSWER _____

- 4** Is $x = 12$ part of the solution set of $18 - x > 5$?

ANSWER _____

- 5** Which value is in the solution set of $4x - 11 \leq 17$? Choose $x = 7$, $x = 8$, or $x = 9$.

ANSWER _____

- 6** Which value is in the solution set of $11 - 4x \leq -1$? Choose $x = 0$, $x = 1$, or $x = 5$.

ANSWER _____

APPLY IT Show your work

- 1** Maya starts a game league with 17 points and earns 7 points for each challenge she finishes. She needs at least 45 points to enter the tournament. Is finishing 4 challenges part of the solution set for $17 + 7x \geq 45$?

WORK SPACE

ANSWER _____

- 2** At a sticker shop, a custom sticker sheet costs \$9 and shipping costs \$7. You have no more than \$52 to spend. Is buying 5 sticker sheets part of the solution set for $9x + 7 \leq 52$?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Which values are part of the solution set of $-10 < 4x - 1 \leq 20$? Choose all that apply: $x = -1$, $x = 0$, $x = 1$, $x = 5$, $x = 6$.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Which value is in the solution set of $x + 9 > 17$? Choose $x = 0$, $x = 1$, or $x = 10$.	$x = 10$
2	Is $x = -4$ part of the solution set of $5x + 6 \geq -15$?	Yes
3	Which value is in the solution set of $-7x < 35$? Choose $x = -9$, $x = -5$, or $x = -1$.	$x = -1$
4	Is $x = 12$ part of the solution set of $18 - x > 5$?	Yes
5	Which value is in the solution set of $4x - 11 \leq 17$? Choose $x = 7$, $x = 8$, or $x = 9$.	$x = 7$
6	Which value is in the solution set of $11 - 4x \leq -1$? Choose $x = 0$, $x = 1$, or $x = 5$.	$x = 5$

PART 2 • APPLY IT

- Yes, 4 challenges.** Substitute $x = 4$: $17 + 7(4) = 45$, and $45 \geq 45$ is true.
- Yes, 5 sticker sheets.** Substitute $x = 5$: $9(5) + 7 = 52$, and $52 \leq 52$ is true.

CHALLENGE

$x = -1$, $x = 0$, $x = 1$, and $x = 5$

Accept equivalent value notation with or without $x =$. For yes or no items, accept a correct response supported by a true substitution.