LESSON MAKER PRO

Test the Values

Find which numbers make an inequality true.

GRADE 6 · 6.AT.C.10.a

6.AT.C.10.a "Explain that a variable can represent an unknown number in a set and use substitution to determine whether a given number in a set makes an inequality true."

NAME _____ DATE _____

SUBSTITUTE AND COMPARE

The variable x can stand for any number in a given set. To test a number, put it in place of x, calculate, and check whether the inequality is true.

WORKED EXAMPLE

For x in {41, 43, 47}, which values make x - 9 >= 37 true?

1. Try 41: 41 - 9 = 32, and 32 >= 37 is false.
2. Try 43: 43 - 9 = 34, and 34 >= 37 is false.
3. Try 47: 47 - 9 = 38, and 38 >= 37 is true.

Answer: 47

PRACTICE 6 problems

1 For x in {2, 4, 6}, which values make x + 3 > 7 true?

ANSWER _____

2 For x in {1, 3, 5}, which values make 2x <= 6 true?

ANSWER _____

3 For x in {2, 4, 6}, which values make 10 - x < 6 true?

ANSWER _____

4 For x in {3, 5, 7}, which values make x/2 >= 3 true?

ANSWER _____

5 For x in {4, 6, 10}, which values make 3x + 2 <= 20 true?

ANSWER _____

6 For x in {2, 5, 7}, which values make 2(x + 1) > 10 true? Explain why one other value does not work.

ANSWER _____

APPLY IT Show your work

1 You have 30 minutes of arcade time. Each game takes 6 minutes. Let x be the number of games you play, with x in {3, 4, 5, 7}. Which choices make 6x <= 30 true?

WORK SPACE

ANSWER _____

2 A club sells stickers for $5 each. Printing costs $20, and the club wants more than $40 left after paying that cost. Let x be the number of stickers sold, with x in {10, 11, 16}. Which choices make 5x - 20 > 40 true?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Which values in {2, 4, 6, 10} make both 2x + 2 >= 10 and 2x + 2 < 20 true? Explain why the greatest value in the set does not work.

WORK SPACE AND ANSWER

ANSWER KEY

Test the Values

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	For x in {2, 4, 6}, which values make x + 3 > 7 true?	**6**
2	For x in {1, 3, 5}, which values make 2x <= 6 true?	**1 and 3**
3	For x in {2, 4, 6}, which values make 10 - x < 6 true?	**6**
4	For x in {3, 5, 7}, which values make x/2 >= 3 true?	**7**
5	For x in {4, 6, 10}, which values make 3x + 2 <= 20 true?	**4 and 6**
6	For x in {2, 5, 7}, which values make 2(x + 1) > 10 true? Explain why one other value does not work.	**5 and 7. For x = 2, 2(2 + 1) = 6, which is not greater than 10.**

PART 2 · APPLY IT

1. **3, 4, and 5** Substitute each choice for x. The times are 18, 24, 30, and 42 minutes, so only 3, 4, and 5 games fit.
2. **16** Substitute each choice for x. The amounts left are $30, $35, and $60, so only 16 stickers leaves more than $40.

CHALLENGE

4 and 6. When x = 10, 2x + 2 = 22, which is not less than 20.

Accept values in any order. For explanations, accept any correct substitution that shows why a value does or does not satisfy the inequality.