LESSON MAKER PRO

Which Values Work?

Test numbers in equations and inequalities

GRADE 6 · MT.6.EE.4

MT.6.EE.4 "Understand how to solve an equation or inequality as a process by using substitution to determine whether a given number in a specified set makes an equation or inequality true."

NAME _____ DATE _____

SUBSTITUTE AND CHECK

To test a number, replace x with that number and calculate. Keep it if the equation or inequality is true. Check every number in the given set.

WORKED EXAMPLE

Which number in {13, 15} makes x + 12 = 27 true?

1. Try 13: 13 + 12 = 25, and 25 does not equal 27.
2. Try 15: 15 + 12 = 27.
3. The equation is true when x is 15.

Answer: 15

PRACTICE 6 problems

1 Test each number in {10, 11, 14}. Which make x + 9 = 20 true?

ANSWER _____

2 Test each number in {5, 7, 9}. Which make 3x = 21 true?

ANSWER _____

3 Test each number in {22, 24, 26}. Which make x - 14 > 10 true?

ANSWER _____

4 Test each number in {7, 9, 10}. Which make 2x + 1 <= 19 true?

ANSWER _____

5 Test each number in {16, 19, 28}. Which make x/4 = 5 true?

ANSWER _____

6 Test each number in {5, 7, 8}. Which make 30 - 3x < 9 true?

ANSWER _____

APPLY IT Show your work

1 An arcade charges $10 to enter and $3 per game. Maya spent exactly $25. If x is the number of games, test {4, 5, 7} in 10 + 3x = 25. How many games did she play?

WORK SPACE

ANSWER _____

2 A music app charges $2 to start a playlist and $3 for each song bought. Leo has $20. If x is the number of songs, test {5, 6, 7} in 2 + 3x <= 20. Which numbers of songs can he afford?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Test each number in {2, 4, 5, 7} in 2(x + 4) > 16. Which numbers work? Explain why the value at the boundary does not work.

WORK SPACE AND ANSWER

ANSWER KEY

Which Values Work?

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Test each number in {10, 11, 14}. Which make x + 9 = 20 true?	**11**
2	Test each number in {5, 7, 9}. Which make 3x = 21 true?	**7**
3	Test each number in {22, 24, 26}. Which make x - 14 > 10 true?	**26**
4	Test each number in {7, 9, 10}. Which make 2x + 1 <= 19 true?	**7 and 9**
5	Test each number in {16, 19, 28}. Which make x/4 = 5 true?	**None**
6	Test each number in {5, 7, 8}. Which make 30 - 3x < 9 true?	**8**

PART 2 · APPLY IT

1. **5 games** The totals for 4, 5, and 7 games are $22, $25, and $31. Only 5 games gives the exact total.
2. **5 or 6 songs** The costs for 5, 6, and 7 songs are $17, $20, and $23. Only 5 and 6 songs cost no more than $20.

CHALLENGE

For x = 2, 4, 5, and 7, the left sides are 12, 16, 18, and 22. Only 5 and 7 work. The boundary value, 4, gives 16, which is not greater than 16.

Accept values in any order when more than one works. In the challenge, accept an explanation that equality does not satisfy >.