LESSON MAKER PRO

Truth Test Lab

Use substitution to find values that make statements true.

GRADE 6 · NY-6.EE.5

NY-6.EE.5 "Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set..."

NAME _____ DATE _____

PRACTICE: TEST EACH VALUE

Replace x with each value in the set. A value is a solution only if the equation is true or the inequality sign is true after you substitute.

WORKED EXAMPLE

Which value from {3, 4, 5} makes 7x - 1 = 27 true?

1. Substitute 3: 7(3) - 1 = 20, and 20 is not 27.
2. Substitute 4: 7(4) - 1 = 27, so the equation is true.
3. Substitute 5: 7(5) - 1 = 34, and 34 is not 27.
4. Only 4 makes the equation true.

Answer: 4

PRACTICE 6 problems

1 Which value from {6, 8, 9} makes 2x + 6 = 18 true?

ANSWER _____

2 Which values from {6, 8, 9} make x + 12 <= 20 true?

ANSWER _____

3 Which value from {8, 9, 10} makes 14 - x = 6 true?

ANSWER _____

4 Which value from {9, 10, 11} makes 2x + 10 = 32 true?

ANSWER _____

5 Which values from {8, 9, 10} make x/2 + 6 < 11 true?

ANSWER _____

6 Which values from {6, 8, 9} make 13 - x < 6 true?

ANSWER _____

APPLY IT Show your work

1 APPLY 1. A gaming event charges $11 to enter plus x dollars for two game tickets that cost the same amount. The total is $29. Which value from {8, 9, 10} could be the cost of one ticket? Use 2x + 11 = 29.

WORK SPACE

ANSWER _____

2 APPLY 2. A music club has 28 minutes in a studio. Setup takes 10 minutes, and each song takes 2 minutes. Which values from {8, 9, 10} can be the number of songs if 10 + 2x <= 28?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE. Do not solve by undoing operations. Use substitution to find which values from {-6, -2, 0, 2, 8} make x + 18 <= 2x + 20 true. Explain how you know.

WORK SPACE AND ANSWER

ANSWER KEY

Truth Test Lab

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Which value from {6, 8, 9} makes 2x + 6 = 18 true?	**6**
2	Which values from {6, 8, 9} make x + 12 <= 20 true?	**6 and 8**
3	Which value from {8, 9, 10} makes 14 - x = 6 true?	**8**
4	Which value from {9, 10, 11} makes 2x + 10 = 32 true?	**11**
5	Which values from {8, 9, 10} make x/2 + 6 < 11 true?	**8 and 9**
6	Which values from {6, 8, 9} make 13 - x < 6 true?	**8 and 9**

PART 2 · APPLY IT

1. **9** Substitute each ticket price into 2x + 11 = 29. Only x = 9 gives 18 + 11 = 29.
2. **8 and 9** Substitute each number of songs into 10 + 2x <= 28. Eight songs take 26 minutes and nine songs take 28 minutes, while ten songs take 30 minutes.

CHALLENGE

-2, 0, 2, and 8. Substitution gives 12 <= 8 false for -6, and 16 <= 16, 18 <= 20, 20 <= 22, and 26 <= 28 true for -2, 0, 2, and 8.

Accept values in any order. Students may show substituted expressions or compare the values of both sides to justify each choice.