LESSON MAKER PRO

Truth Test

Use substitution to find values that make statements true.

GRADE 6 · 6.EE.B.5

CCSS.Math.Content.6.EE.B.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** _____

TEST EACH VALUE

A value is a solution only if substituting it for x makes an equation or inequality true. Replace x with each number in the specified set, then calculate and compare. Do not choose values outside the set.

WORKED EXAMPLE

From the set {2, 5, 8}, which value makes 3x + 1 = 16 true?

1. Substitute x = 2: 3(2) + 1 = 7, so 7 = 16 is false.
2. Substitute x = 5: 3(5) + 1 = 16, so 16 = 16 is true.
3. Substitute x = 8: 3(8) + 1 = 25, so 25 = 16 is false.

Answer: x = 5

PRACTICE 6 problems

1 From the set {0, 4, 7}, which value makes x + 6 = 10 true?

ANSWER _____

2 From the set {-4, 9, 12}, which values make 11x > 80 true?

ANSWER _____

3 From the set {13, 14, 15}, which value makes 4x - 9 = 47 true?

ANSWER _____

4 From the set {0, 4, 7}, which values make 6x - 6 >= 18 true?

ANSWER _____

5 From the set {-36, -24, -12}, which value makes x/6 = -4 true?

ANSWER _____

6 From the set {20, 30, 40}, which values make 90 - x < 40 true?

ANSWER _____

APPLY IT Show your work

1 Jalen has x game tokens, where x is one of {14, 18, 22}. He uses 9 tokens and wants to have at least 11 tokens left. Which starting number of tokens works?

WORK SPACE

ANSWER _____

2 A school club can order x sticker packs, where x is one of {6, 10, 14}. Each pack costs $4, and shipping costs $7. The club can spend at most $55. Which numbers of packs can the club order?

WORK SPACE

ANSWER _____

CHALLENGE One step up

From the set {-18, -12, -6, 0, 6, 12}, which values make 4(x + 9) > 36 true? Explain why each other value fails.

WORK SPACE AND ANSWER

ANSWER KEY

Truth Test

GRADE 6 · 6.EE.B.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	From the set {0, 4, 7}, which value makes x + 6 = 10 true?	**4**
2	From the set {-4, 9, 12}, which values make 11x > 80 true?	**9 and 12**
3	From the set {13, 14, 15}, which value makes 4x - 9 = 47 true?	**14**
4	From the set {0, 4, 7}, which values make 6x - 6 >= 18 true?	**4 and 7**
5	From the set {-36, -24, -12}, which value makes x/6 = -4 true?	**-24**
6	From the set {20, 30, 40}, which values make 90 - x < 40 true?	**No values**

PART 2 · APPLY IT

1. **22 tokens** Test x - 9 >= 11 for each possible starting amount. Only 22 leaves at least 11 tokens.
2. **6 packs and 10 packs** Test 4x + 7 <= 55. The totals for 6 and 10 packs are $31 and $47, while 14 packs cost $63.

CHALLENGE

6 and 12. Substitution gives 60 > 36 and 84 > 36. The other values produce numbers that are not greater than 36.

Accept correct values listed in any order. For the no-values item, accept “no values,” “none,” or an equivalent statement.