LESSON MAKER PRO

Truth Test Lab

Test integer values in equations and inequalities.

GRADE 6 · MA.6.AR.2.1

MA.6.AR.2.1 "Given an equation or inequality and a specified set of integer values, determine which values make the equation or inequality true or false."

NAME _____ DATE _____

TEST EACH VALUE

A value makes an equation or inequality true when replacing x with that value makes a correct math statement. Substitute each integer from the set, then sort the values into true and false groups.

WORKED EXAMPLE

For x/7 = 2, test x values {-7, 14, 21}. Which value makes the equation true?

1. Substitute -7: -7/7 = -1, so the equation is false.
2. Substitute 14: 14/7 = 2, so the equation is true.
3. Substitute 21: 21/7 = 3, so the equation is false.

Answer: True: 14. False: -7, 21.

PRACTICE 6 problems

1 1. For x + 5 = 11, test x values {0, 6, 9}. Which values make the equation true or false?

ANSWER _____

2 2. For x - 8 = -3, test x values {-11, -5, 5}. Which values make the equation true or false?

ANSWER _____

3 3. For 6x = -24, test x values {-4, -3, 4}. Which values make the equation true or false?

ANSWER _____

4 4. For x/5 < 1, test x values {-10, 0, 5, 10}. Which values make the inequality true or false?

ANSWER _____

5 5. For x + 9 >= 9, test x values {-9, 0, 1}. Which values make the inequality true or false?

ANSWER _____

6 6. For -3x > 12, test x values {-6, -4, 0}. Which values make the inequality true or false?

ANSWER _____

APPLY IT Show your work

1 A player has 31 game coins. They spend x coins on an avatar and need at least 22 coins left for a power-up. Test x values {5, 9, 12} in 31 - x >= 22. Which values make the inequality true or false?

WORK SPACE

ANSWER _____

2 Maya has 16 minutes of podcast episodes already queued. She wants her total listening time to be 25 minutes or less, so she can add x more minutes. Test x values {6, 9, 11} in x + 16 <= 25. Which values make the inequality true or false?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A maker club has x stickers. After giving away 18 stickers, the club has fewer than 6 stickers. From the set {0, 8, 19, 23, 31}, list the values that make x - 18 < 6 true and false. Explain how you can decide without substituting every value.

WORK SPACE AND ANSWER

ANSWER KEY

Truth Test Lab

GRADE 6 · MA.6.AR.2.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	1. For x + 5 = 11, test x values {0, 6, 9}. Which values make the equation true or false?	**True: 6. False: 0, 9.**
2	2. For x - 8 = -3, test x values {-11, -5, 5}. Which values make the equation true or false?	**True: 5. False: -11, -5.**
3	3. For 6x = -24, test x values {-4, -3, 4}. Which values make the equation true or false?	**True: -4. False: -3, 4.**
4	4. For x/5 < 1, test x values {-10, 0, 5, 10}. Which values make the inequality true or false?	**True: -10, 0. False: 5, 10.**
5	5. For x + 9 >= 9, test x values {-9, 0, 1}. Which values make the inequality true or false?	**True: 0, 1. False: -9.**
6	6. For -3x > 12, test x values {-6, -4, 0}. Which values make the inequality true or false?	**True: -6. False: -4, 0.**

PART 2 · APPLY IT

1. **True: 5, 9. False: 12.** Substitute each possible number of coins spent into 31 - x >= 22. Spending 5 or 9 coins leaves at least 22 coins, while spending 12 coins does not.
2. **True: 6, 9. False: 11.** Substitute each possible number of added minutes into x + 16 <= 25. Adding 6 or 9 minutes keeps the total at 25 minutes or less.

CHALLENGE

True: 0, 8, 19, 23. False: 31. Since x - 18 < 6 means x < 24, every listed value less than 24 is true.

Accept true and false values in any order when the groups are labeled correctly. For the challenge, accept an equivalent explanation that identifies x < 24.