

Truth Test

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

Replace x with each given integer and calculate. An equation is true when both sides are equal. An inequality is true when the comparison symbol is correct.

WORKED EXAMPLE

Test $x = 10, 12$, and 13 in $x - 7 = 5$.

1. Substitute 10: $10 - 7 = 3$, and 3 is not 5.
2. Substitute 12: $12 - 7 = 5$.
3. Substitute 13: $13 - 7 = 6$, and 6 is not 5.

Answer: Only $x = 12$ makes the equation true.

PRACTICE 6 problems

- 1** Which values in $\{1, 2, 4\}$ make $x + 9 = 11$ true?

ANSWER _____

- 2** Which values in $\{-1, 2, 4\}$ make $x - 2 > 1$ true?

ANSWER _____

- 3** Which values in $\{2, 4, 8\}$ make $4x = 16$ true?

ANSWER _____

- 4** Which values in $\{-2, 4, 9\}$ make $x/2 \leq 4$ true?

ANSWER _____

- 5** Which values in $\{1, 4, 8\}$ make $15 = x + 11$ true?

ANSWER _____

- 6** Which values in $\{1, 4, 8\}$ make $4x > 20$ true?

ANSWER _____

APPLY IT Show your work

- 1** A gaming app gives a player 17 tokens. The player gets 8 daily tokens and x bonus tokens. Which values in $\{4, 9, 11\}$ make $x + 8 = 17$ true?

WORK SPACE

ANSWER _____

- 2** To join a music contest, a student's score must be at least 24 points. A student's score is $x + 16$ points. Which values in $\{4, 8, 9\}$ make $x + 16 \geq 24$ true?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Which values in $\{-8, -4, 0, 2\}$ make $-4x \geq 0$ true? Explain how you know.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Which values in $\{1, 2, 4\}$ make $x + 9 = 11$ true?	$x = 2$
2	Which values in $\{-1, 2, 4\}$ make $x - 2 > 1$ true?	$x = 4$
3	Which values in $\{2, 4, 8\}$ make $4x = 16$ true?	$x = 4$
4	Which values in $\{-2, 4, 9\}$ make $x/2 \leq 4$ true?	$x = -2$ and $x = 4$
5	Which values in $\{1, 4, 8\}$ make $15 = x + 11$ true?	$x = 4$
6	Which values in $\{1, 4, 8\}$ make $4x > 20$ true?	$x = 8$

PART 2 • APPLY IT

1. **$x = 9$** Substitute each possible bonus amount into $x + 8 = 17$. Only 9 plus 8 equals 17.
2. **$x = 8$ and $x = 9$** Test each value in $x + 16 \geq 24$. Scores of 24 and 25 meet the requirement.

CHALLENGE

$x = -8$, $x = -4$, and $x = 0$. A negative number times a negative number is positive, and -4 times 0 is 0 , so each result is at least 0 .

Accept values listed in any order. For the challenge, accept an explanation that correctly shows the product is nonnegative for the selected values.