LESSON MAKER PRO

# Which Values Work?

*Test numbers in equations and inequalities.*

**GRADE 6 · 6.EE.5**

**6.EE.5** "Solve an equation or inequality and understand the process by 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

Replace x with each number in the given set. Keep a number only when it makes the equation or inequality true. For < and >, equal amounts do not count.

### WORKED EXAMPLE

Which values in {8, 12, 13} make x + 17 > 29 true?

1. Try 8: 8 + 17 = 25, and 25 > 29 is false.
2. Try 12: 12 + 17 = 29, and 29 > 29 is false.
3. Try 13: 13 + 17 = 30, and 30 > 29 is true.

**Answer: 13**

## PRACTICE 6 problems

**1** Which values in {7, 9, 11} make x + 7 = 16 true?

**ANSWER** _____

**2** Which values in {0, 6, 7, 9} make 2x + 1 < 15 true?

**ANSWER** _____

**3** Which values in {4, 7, 9} make 3x = 22 true?

**ANSWER** _____

**4** Which values in {9, 11, 14, 16} make x/4 >= 3 true?

**ANSWER** _____

**5** Which values in {0, 7, 9, 10} make 18 - x > 10 true?

**ANSWER** _____

**6** Which values in {7, 9, 10} make 3x - 11 = x + 7 true? Show a substitution that proves your answer.

**ANSWER** _____

## APPLY IT Show your work

**1** You have 10 arcade tickets and earn 6 more for each game you play. A prize costs 34 tickets. Which numbers of games in {1, 3, 4, 7} would give you enough tickets for the prize?

WORK SPACE

**ANSWER** _____

**2** A group buys a $9 snack and x movie tickets that cost $7 each. The total is $44. Which values in {4, 5, 6} could be the number of movie tickets?

WORK SPACE

**ANSWER** _____

## CHALLENGE One step up

Your sticker collection must have at least 20 stickers but no more than 26. You already have 7 stickers, and each pack adds 3 stickers. Which numbers of packs in {4, 5, 6, 7, 9} meet both goals? Explain using substitution.

WORK SPACE AND ANSWER

**ANSWER KEY**

# Which Values Work?

**GRADE 6 · 6.EE.5**

## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | Which values in {7, 9, 11} make x + 7 = 16 true? | **9** |
| 2 | Which values in {0, 6, 7, 9} make 2x + 1 < 15 true? | **0, 6** |
| 3 | Which values in {4, 7, 9} make 3x = 22 true? | **None** |
| 4 | Which values in {9, 11, 14, 16} make x/4 >= 3 true? | **14, 16** |
| 5 | Which values in {0, 7, 9, 10} make 18 - x > 10 true? | **0, 7** |
| 6 | Which values in {7, 9, 10} make 3x - 11 = x + 7 true? Show a substitution that proves your answer. | **9; when x = 9, 3x - 11 = 16 and x + 7 = 16.** |

## PART 2 · APPLY IT

1. **4, 7** Test the values in 10 + 6x >= 34. Playing 4 or 7 games gives at least 34 tickets.
2. **5** Test the values in 9 + 7x = 44. When x = 5, the total is $44.

## CHALLENGE

**5 and 6 packs. With 5 packs, 7 + 3(5) = 22. With 6 packs, 7 + 3(6) = 25. Both totals are at least 20 and no more than 26; the other values give totals outside that range.**

Accept values in any order. For the challenge, accept any correct substitution-based explanation that shows why 5 and 6 meet both limits.