LESSON MAKER PRO

Which Value Works?

Choose values from a set and test what they make true.

GRADE 6 · 6.AF.A.15.a

6.AF.A.15.a "Interpret a variable as an unknown value for any number in a specified set, depending on the context."

NAME _____ DATE _____

A VARIABLE HAS CHOICES

A variable can stand for any number in its given set. To test a value, replace x with that number and calculate.

WORKED EXAMPLE

x is in {13, 15, 17}. Find x + 8 when x = 15.

1. 15 is in the given set.
2. Replace x with 15: x + 8 = 15 + 8.
3. 15 + 8 = 23.

Answer: 23

PRACTICE 6 problems

1 x is in {2, 4, 6}. Which value of x makes x + 3 = 7?

ANSWER _____

2 x is in {1, 3, 5}. Which value of x makes 4x = 12?

ANSWER _____

3 x is in {0, 2, 4}. List all possible values of 2x + 1.

ANSWER _____

4 x is in {2, 4, 6}. Can any value of x make x + 5 = 10? Explain briefly.

ANSWER _____

5 x is in {1, 2, 3, 4}. Which values of x make 2x < 7?

ANSWER _____

6 x is in {2, 4, 6}. Which value makes 3x + 1 = 19? Then find x - 1.

ANSWER _____

APPLY IT Show your work

1 Your class is making a playlist for a school event. You may add x songs, where x is in {2, 3, 4}. Each song lasts 4 minutes, and the event has 12 minutes left. Which value of x fills the time exactly?

WORK SPACE

ANSWER _____

2 In a game, each new outfit costs 3 coins. You have 10 coins. Let x be the number of outfits you buy, where x is in {0, 1, 2, 3, 4}. Which values of x can you afford?

WORK SPACE

ANSWER _____

CHALLENGE One step up

x is in {0, 1, 2, 3, 4, 5, 6}. For which values of x is 2x + 1 less than x + 4? Explain how you know.

WORK SPACE AND ANSWER

ANSWER KEY

Which Value Works?

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	x is in {2, 4, 6}. Which value of x makes x + 3 = 7?	**x = 4**
2	x is in {1, 3, 5}. Which value of x makes 4x = 12?	**x = 3**
3	x is in {0, 2, 4}. List all possible values of 2x + 1.	**1, 5, 9**
4	x is in {2, 4, 6}. Can any value of x make x + 5 = 10? Explain briefly.	**No. Only x = 5 makes the equation true, and 5 is not in the set.**
5	x is in {1, 2, 3, 4}. Which values of x make 2x < 7?	**x = 1, 2, or 3**
6	x is in {2, 4, 6}. Which value makes 3x + 1 = 19? Then find x - 1.	**x = 6; x - 1 = 5**

PART 2 · APPLY IT

1. **x = 3 songs** Test the allowed values in 4x = 12. Three songs fill 12 minutes.
2. **x = 0, 1, 2, or 3** The cost is 3x coins. Each listed value costs at most 10 coins, while 4 outfits cost 12 coins.

CHALLENGE

x = 0, 1, or 2. The expressions are equal when x = 3; for smaller values in the set, 2x + 1 is less than x + 4.

Accept the values in any order when a problem has more than one answer. For explanations, accept testing the values in the set or equivalent arithmetic reasoning.