LESSON MAKER PRO

Inputs in Action

Read function values and decide which inputs fit.

GRADE 8 · 8A.AF.F.16

8A.AF.F.16 "Define a function as a mapping from one set (called the domain) to another set (called the range) that assigns to each element of the domain exactly one element of the range. a. Use function notation..."

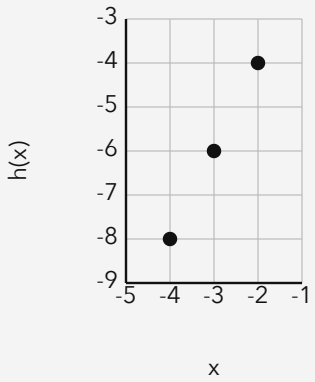
NAME _____ DATE _____

INPUT AND OUTPUT

A function assigns each input in its domain exactly one output. The notation f(x) names the output for input x. If a graph shows separate points, only the plotted x-values are in its domain.

WORKED EXAMPLE

The plotted points define h. Find h(-3).



1. Find -3 on the x-axis.
2. The plotted point at x = -3 has an output of -6.

Answer: h(-3) = -6

PRACTICE 4 problems

1 For f(x) = 3x + 1, find f(4).

ANSWER _____

2 For q(x) = x^2 + 2, find q(3).

ANSWER _____

3 For r(x) = 2^x, find r(2).

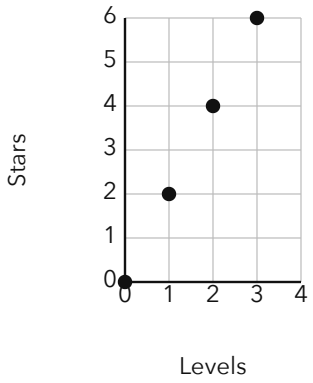
ANSWER _____

4 For a(x) = |x - 6|, find a(10).

ANSWER _____

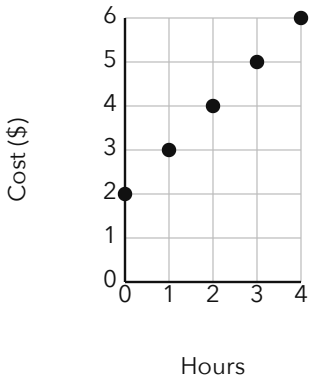
APPLY IT Show your work

1 A game has 3 levels. The graph shows total stars s(x) after x completed levels. Find s(2) and list the domain.



ANSWER _____

2 A skate park charges $2 to enter, plus $1 per whole hour, for up to 4 hours. The graph shows cost c(x) for x hours. Find c(3). Why is c(1/2) not defined?



ANSWER _____

CHALLENGE One step up

A function has domain {0, 1, 2, 3} and rule $g(x) = x^2 + 1$. A student says $g(4) = 17$. Is 17 an output of this function? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Inputs in Action

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	For $f(x) = 3x + 1$, find $f(4)$.	**13**
2	For $q(x) = x^2 + 2$, find $q(3)$.	**11**
3	For $r(x) = 2^x$, find $r(2)$.	**4**
4	For $a(x) = \|x - 6\|$, find $a(10)$.	**4**

PART 2 · APPLY IT

1. **s(2) = 4; domain = {0, 1, 2, 3}** Read the output at x = 2. The plotted x-values show the possible numbers of completed levels.
2. **c(3) = $5; 1/2 is not in the domain because the park charges for whole hours only.** Read the cost at x = 3. The allowed inputs are 0, 1, 2, 3, and 4 whole hours.

CHALLENGE

No. The domain does not include 4, so g(4) is not defined. The outputs for the allowed inputs are 1, 2, 5, and 10.

Accept answers that give the correct value with or without function notation. For the challenge, accept any explanation that rejects 17 because 4 is outside the domain.