LESSON MAKER PRO

Domain Detectives

Read inputs from graphs and real situations.

HIGH SCHOOL · AI-F.IF.5

AI-F.IF.5 "Determine the domain of a function from its graph and, where applicable, identify the appropriate domain for a function in context."

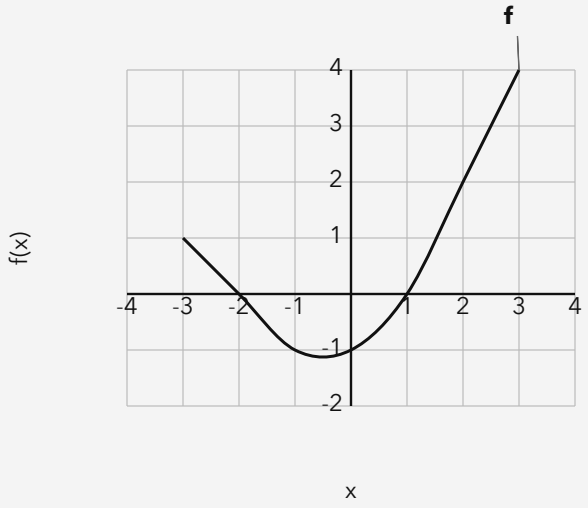
NAME _____ DATE _____

FIND THE INPUTS

The domain is the set of all x-values where a function has an output. On a graph, scan from left to right to find every x-value covered. In a context, decide whether inputs can vary continuously or must be separate counted values.

WORKED EXAMPLE

Find the domain of f from the graph.



1. Find the leftmost x-value, -3.
2. Find the rightmost x-value, 3.
3. The graph covers every x-value between them.

Answer: [-3, 3]

PRACTICE 4 problems

1 Find the domain of p(x) = sqrt(x - 5).

ANSWER _____

2 Find the domain of q(x) = 1/(x - 7).

ANSWER _____

3 A function pairs each locker number in {9, 11, 13, 15} with a student name. State the domain.

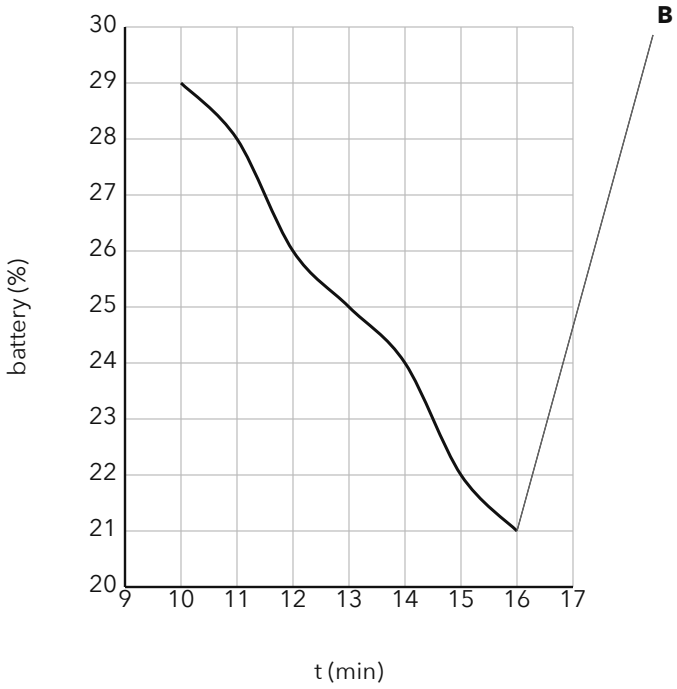
ANSWER _____

4 A parking meter's cost function C(x) uses x whole minutes parked, from 20 through 60. State the appropriate domain.

ANSWER _____

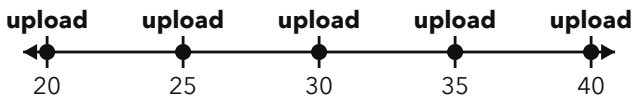
APPLY IT Show your work

1 The graph shows a phone battery's charge during a test. Let t be time in minutes. What is the domain of the function?



ANSWER _____

2 The number line shows the times, in minutes after 4:00, when Kai uploads clips. Function V(t) gives the views for the clip uploaded at time t. State the domain.



ANSWER _____

CHALLENGE One step up

A fitness band defines R(t) as heart rate t seconds after warm-up begins. It records continuously from t = 40 through t = 70, but it is off for 52 <= t < 57. State the domain and explain why.

WORK SPACE AND ANSWER

ANSWER KEY

Domain Detectives

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the domain of p(x) = sqrt(x - 5).	**[5, infinity)**
2	Find the domain of q(x) = 1/(x - 7).	**(-infinity, 7) union (7, infinity)**
3	A function pairs each locker number in {9, 11, 13, 15} with a student name. State the domain.	**{9, 11, 13, 15}**
4	A parking meter's cost function C(x) uses x whole minutes parked, from 20 through 60. State the appropriate domain.	**{20, 21, 22, ..., 60}**

PART 2 · APPLY IT

1. **[10, 16]** The graph begins at t = 10 and ends at t = 16. Time varies continuously during the test.
2. **{20, 25, 30, 35, 40}** Only the five marked upload times are inputs. The domain is discrete, not every time between the marks.

CHALLENGE

[40, 52) union [57, 70], because the band records all times except 52 <= t < 57.

Accept equivalent interval notation and equivalent inequality forms. For contextual domains, require discrete sets when only separate input values are possible.