

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 _____

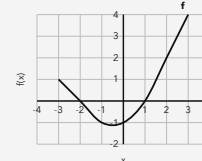
DATE _____

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.

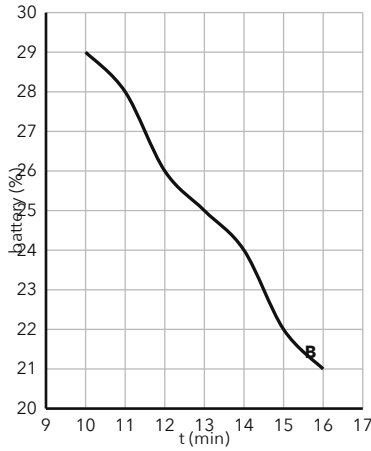
ANSWER _____

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

ANSWER _____

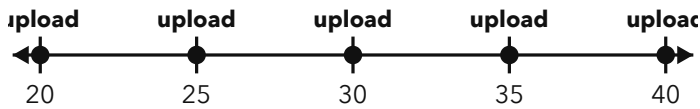
APPLY IT Show your work

- 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 $52 \leq t < 57$. State the domain and explain why.

WORK SPACE AND ANSWER

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 $52 \leq t < 57$.

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