

Domain And Range Of Graphs Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the domain of a function?

undefined. A) The set of all possible output values (y-values)

undefined. B) The set of all possible input values (x-values) ✓

undefined. C) The set of all positive numbers

undefined. D) The set of all negative numbers

The domain of a function is the set of all possible input values (x-values).

Which of the following notations can be used to express the domain of a function?

undefined. A) Interval notation ✓

undefined. B) Set notation ✓

undefined. C) Inequalities ✓

undefined. D) Function notation

The domain can be expressed using interval notation, set notation, and inequalities.

Explain the difference between domain and range in your own words.

The domain refers to the input values of a function, while the range refers to the output values.

List two types of functions and describe their typical domain and range.

1. Type of function 1 and its domain and range.

Linear function: Domain is all real numbers, range is all real numbers.

2. Type of function 2 and its domain and range.

Quadratic function: Domain is all real numbers, range is $y \geq 0$.

Examples include linear functions with domain and range as all real numbers, and quadratic functions with domain as all real numbers and range as non-negative numbers.

Part 2: Understanding and Interpretation

If a graph has a hole at $x = 3$, what does this indicate about the domain?

undefined. A) $x = 3$ is included in the domain

undefined. B) $x = 3$ is excluded from the domain ✓

undefined. C) The domain is all real numbers

undefined. D) The domain is only positive numbers

A hole at $x = 3$ indicates that $x = 3$ is excluded from the domain.

Which of the following graphs represents a function with a range of $y \geq 0$?

undefined. A) A linear graph

undefined. B) A quadratic graph opening upwards ✓

undefined. C) A rational graph with a horizontal asymptote at $y = 0$ ✓

undefined. D) A cubic graph

A quadratic graph opening upwards and a rational graph with a horizontal asymptote at $y = 0$ both have a range of $y \geq 0$.

Describe how you would determine the range of a function by looking at its graph.

To determine the range, observe the y -values that the graph reaches and identify any restrictions.

Part 3: Application and Analysis

Given the function $f(x) = \sqrt{x - 2}$, what is the domain of this function?

undefined. A) $x \geq 2$ ✓

undefined. B) $x > 2$

undefined. C) $x \leq 2$

undefined. D) $x < 2$

The domain of $f(x) = \sqrt{x - 2}$ is $x \geq 2$.

Which of the following functions have a domain of all real numbers?

undefined. A) $f(x) = x^2$ ✓

undefined. B) $f(x) = 1/(x - 1)$

undefined. C) $f(x) = e^x$ ✓

undefined. D) $f(x) = \ln(x)$

The functions $f(x) = x^2$ and $f(x) = e^x$ have a domain of all real numbers.

Analyze the graph of a rational function and describe how to determine any restrictions on its domain.

To determine restrictions, look for vertical asymptotes and holes in the graph.

Which aspect of a graph indicates a vertical asymptote?

undefined. A) A point where the graph crosses the x-axis

undefined. B) **A line where the graph approaches but never touches** ✓

undefined. C) A point where the graph crosses the y-axis

undefined. D) A flat line at the top of the graph

A vertical asymptote is indicated by a line where the graph approaches but never touches.

Part 4: Evaluation and Creation

If a function's graph has both a vertical and a horizontal asymptote, what can be inferred about its domain and range?

undefined. A) The domain is all real numbers, and the range is limited

undefined. B) The domain is limited, and the range is all real numbers

undefined. C) **Both domain and range are limited** ✓

undefined. D) Both domain and range are all real numbers

If a function has both types of asymptotes, it typically indicates that the domain is limited and the range may also be limited.

Which strategies can be used to find the domain and range of a complex function?

undefined. **A) Break down the function into simpler parts ✓**

undefined. **B) Analyze the graph for asymptotes and discontinuities ✓**

undefined. **C) Use algebraic manipulation to find restrictions ✓**

undefined. D) Assume the domain and range are all real numbers

Strategies include breaking down the function, analyzing the graph, and using algebraic manipulation.

Create a real-world scenario where understanding the domain and range of a function is crucial. Explain how you would determine these values in your scenario.

In a real-world scenario, such as modeling population growth, the domain could represent time, and the range could represent population size.