

Domain And Range Of Graphs Worksheet

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Part 1: Building a Foundation

What is the domain of a function?

Hint: Think about what values you can input into a function.

- A) The set of all possible output values (y-values)
- B) The set of all possible input values (x-values)
- C) The set of all positive numbers
- D) The set of all negative numbers

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

Hint: Consider different ways to represent sets of numbers.

- A) Interval notation
- B) Set notation
- C) Inequalities
- D) Function notation

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

Hint: Think about what each term refers to in relation to a function.

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

Hint: Consider common functions like linear and quadratic.

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

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

Part 2: Understanding and Interpretation

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

Hint: Consider what a hole in a graph means for input values.

- A) $x = 3$ is included in the domain
- B) $x = 3$ is excluded from the domain
- C) The domain is all real numbers
- D) The domain is only positive numbers

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

Hint: Think about the shapes of different types of graphs.

- A) A linear graph
- B) A quadratic graph opening upwards
- C) A rational graph with a horizontal asymptote at $y = 0$
- D) A cubic graph

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

Hint: Consider the highest and lowest points of the graph.

Part 3: Application and Analysis

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

Hint: Consider the values of x that make the expression under the square root non-negative.

- A) $x \geq 2$
- B) $x > 2$
- C) $x \leq 2$
- D) $x < 2$

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

Hint: Think about the restrictions that might apply to each function.

- A) $f(x) = x^2$
- B) $f(x) = 1/(x - 1)$
- C) $f(x) = e^x$
- D) $f(x) = \ln(x)$

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

Hint: Consider points where the function is undefined.

Which aspect of a graph indicates a vertical asymptote?

Hint: Think about where the graph approaches but does not touch a line.

- A) A point where the graph crosses the x-axis
- B) A line where the graph approaches but never touches
- C) A point where the graph crosses the y-axis
- D) A flat line at the top of the graph

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?

Hint: Consider how asymptotes affect the values of x and y .

- A) The domain is all real numbers, and the range is limited
- B) The domain is limited, and the range is all real numbers
- C) Both domain and range are limited
- D) Both domain and range are all real numbers

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

Hint: Consider different approaches to analyze functions.

- A) Break down the function into simpler parts
- B) Analyze the graph for asymptotes and discontinuities
- C) Use algebraic manipulation to find restrictions
- D) Assume the domain and range are all real numbers

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.

Hint: Think about situations in business, science, or everyday life.