

## Domain And Range From A Graph Worksheet

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### Part 1: Foundational Knowledge

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#### 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
- B) The set of all possible input values
- C) The set of all positive values
- D) The set of all negative values

#### Which of the following statements are true about the range of a function? (Select all that apply)

*Hint: Consider what values the function can produce.*

- A) It includes all y-values that the function can output.
- B) It is always the same as the domain.
- C) It can be found by looking at the graph's extent along the y-axis.
- D) It only includes positive numbers.

#### Define the term "domain" in your own words and explain how it is identified on a graph.

*Hint: Think about the inputs of a function and how they are represented.*

#### List two characteristics of a quadratic function's graph that help determine its range.

Hint: Consider the shape and vertex of the graph.

1. Characteristic 1

2. Characteristic 2

**Which notation is used to express a domain that includes all real numbers?**

Hint: Think about the symbols used to represent infinity.

- A)  $[0, \infty)$
- B)  $(-\infty, \infty)$
- C)  $\{x \mid x > 0\}$
- D)  $(0, 1)$

## Part 2: Understanding and Interpretation

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**When analyzing a graph, what does the term "continuous" imply about the domain and range?**

Hint: Consider how the graph behaves without breaks.

- A) They consist of discrete points.
- B) They include all numbers within an interval.
- C) They are limited to positive values.
- D) They exclude zero.

**Which of the following graphs represent a function with a domain of all real numbers? (Select all that apply)**

Hint: Think about the characteristics of the graphs.

- A) A linear graph
- B) A quadratic graph
- C) A rational graph with a vertical asymptote
- D) An exponential graph

**Explain 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: Applying Knowledge to New Situations

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**If a graph has a hole at  $x = 2$ , what is the domain of the function?**

*Hint: Think about how holes affect the input values.*

- A) All real numbers
- B) All real numbers except  $x = 2$
- C)  $x > 2$
- D)  $x < 2$

**Given a graph of a function that opens upwards and has a vertex at  $(0, -3)$ , what is the range of the function? (Select all that apply)**

*Hint: Consider the lowest point of the graph.*

- A)  $y \geq -3$
- B)  $y \leq -3$
- C)  $y > -3$
- D)  $y < -3$

**Sketch a graph of a function with a domain of  $x \geq 0$  and a range of  $y \geq 0$ . Describe the key features of your graph.**

*Hint: Think about the shape and position of the graph.*

## Part 4: Analyzing Relationships

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**How does the presence of a horizontal asymptote affect the range of a rational function?**

*Hint: Consider what an asymptote represents.*

- A) It limits the domain.
- B) It creates a boundary for the range.
- C) It has no effect on the range.
- D) It only affects the domain.

**Analyze the graph of a piecewise function. Which sections of the graph contribute to the domain? (Select all that apply)**

*Hint: Consider which parts of the graph are defined.*

- A) The linear section
- B) The constant section
- C) The undefined section
- D) The quadratic section

**Compare and contrast the domain and range of a linear function with those of a quadratic function.**

*Hint: Think about the differences in their graphs.*

## Part 5: Synthesis and Reflection

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**Which of the following scenarios would require adjusting the domain of a function?**

*Hint: Consider changes that affect input values.*

- A) Adding a vertical asymptote
- B) Shifting the graph upwards

- C) Reflectin the graph over the x-axis
- D) Stretchin the graph horizontally

**Evaluate the impact of a vertical shift on the range of a function. Which statements are true? (Select all that apply)**

*Hint: Think about how shifting affects the output values.*

- A) The range shifts up or down by the same amount.
- B) The domain remains unchanged.
- C) The range becomes undefined.
- D) The range is compressed.

**Create a real-world scenario where understanding the domain and range of a function is crucial. Explain how you would determine the domain and range in this context.**

*Hint: Think about a situation that involves limits or constraints.*