

# Domain And Range From A Graph Worksheet Answer Key PDF

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## Part 1: Foundational Knowledge

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### What is the domain of a function?

undefined. A) The set of all possible output values

**undefined. B) The set of all possible input values ✓**

undefined. C) The set of all positive values

undefined. D) The set of all negative values

The domain of a function is the set of all possible input values.

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

**undefined. A) It includes all y-values that the function can output. ✓**

undefined. B) It is always the same as the domain.

**undefined. C) It can be found by looking at the graph's extent along the y-axis. ✓**

undefined. D) It only includes positive numbers.

The range includes all y-values that the function can output and can be found by looking at the graph's extent along the y-axis.

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

**The domain refers to the set of all possible input values for a function, which can be identified on a graph by observing the x-values that the graph covers.**

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

1. Characteristic 1

**The vertex of the parabola.**

2. Characteristic 2

### The direction it opens (upward or downward).

The vertex and the direction the parabola opens (upward or downward) are key characteristics that help determine the range.

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

undefined. A)  $[0, \infty)$

**undefined. B)  $(-\infty, \infty)$  ✓**

undefined. C)  $\{x \mid x > 0\}$

undefined. D)  $(0, 1)$

The notation used to express a domain that includes all real numbers is  $(-\infty, \infty)$ .

## Part 2: Understanding and Interpretation

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

undefined. A) They consist of discrete points.

**undefined. B) They include all numbers within an interval. ✓**

undefined. C) They are limited to positive values.

undefined. D) They exclude zero.

The term 'continuous' implies that the domain and range include all numbers within an interval without any gaps.

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

**undefined. A) A linear graph ✓**

**undefined. B) A quadratic graph ✓**

undefined. C) A rational graph with a vertical asymptote

**undefined. D) An exponential graph ✓**

A linear graph, a quadratic graph, and an exponential graph represent functions with a domain of all real numbers.

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

To determine the range of a function from its graph, observe the y-values covered by the graph, identifying the minimum and maximum points.

### 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?

undefined. A) All real numbers

undefined. **B) All real numbers except  $x = 2$  ✓**

undefined. C)  $x > 2$

undefined. D)  $x < 2$

The domain of the function is all real numbers except  $x = 2$  due to the hole.

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)

undefined. **A)  $y \geq -3$  ✓**

undefined. B)  $y \leq -3$

undefined. C)  $y > -3$

undefined. D)  $y < -3$

The range of the function is  $y \geq -3$ , as the vertex is the minimum point.

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.

The graph should start at the origin and extend into the first quadrant, showing that both the domain and range are non-negative.

### Part 4: Analyzing Relationships

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

undefined. A) It limits the domain.

undefined. **B) It creates a boundary for the range. ✓**

undefined. C) It has no effect on the range.

undefined. D) It only affects the domain.

A horizontal asymptote creates a boundary for the range, limiting the output values of the function.

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

undefined. **A) The linear section ✓**

undefined. **B) The constant section ✓**

undefined. C) The undefined section

undefined. **D) The quadratic section ✓**

The linear section, constant section, and quadratic section contribute to the domain, while the undefined section does not.

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

**A linear function has a domain and range of all real numbers, while a quadratic function's range is limited based on its vertex and direction of opening.**

## Part 5: Synthesis and Reflection

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

undefined. **A) Adding a vertical asymptote ✓**

undefined. B) Shifting the graph upwards

undefined. C) Reflectin the graph over the x-axis

undefined. D) Stretchin the graph horizontally

Adding a vertical asymptote would require adjusting the domain of a function.

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

undefined. **A) The range shifts up or down by the same amount. ✓**

undefined. **B) The domain remains unchanged. ✓**

undefined. C) The range becomes undefined.

undefined. D) The range is compressed.

A vertical shift moves the range up or down, while the domain remains unchanged.

**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.**

**A real-world scenario could involve a business's profit function, where the domain is limited by production capacity and the range is determined by profit values.**