



Practice Worksheet on Functions

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Subject: Mathematics

Date: 3/27/2025

Long Answer Questions

1. Explain the concept of a function with a real-world example.
2. Define the domain and range of a function.
3. Describe three different ways to represent a function.
4. Give a real-world example of a functional relationship that involves physical activity.
5. Describe a financial scenario that represents a functional relationship.
6. Describe a scenario that demonstrates a linear functional relationship involving study time and test scores.
7. Explain the functional relationship between hours of sleep and energy levels, considering potential non-linear aspects.

8. Give a real-world example of a functional relationship where a simple equation might not perfectly capture the relationship, describing why.

Multiple Choice Questions

1. In the pizza example, which value depends on the number of slices eaten?

- a) The total number of slices
- b) The number of slices remaining
- c) The size of each slice
- d) The type of pizza

2. In the Ferris wheel example, what represents the domain of the function?

- a) All possible ages of children allowed on the ride
- b) The number of children on the ride
- c) The height of the children
- d) The time of day

3. What represents the range in the Ferris wheel example?

- a) The number of times the Ferris wheel goes around
- b) The possible positions a child can occupy in a cabin
- c) The height of each cabin
- d) The price of a ride

4. In the sandwich example, what represents the domain?

- a) The type of bread
- b) The number of bread slices
- c) The toppings used
- d) The size of the sandwiches

5. In the sandwich example, what represents the range?

- a) The type of filling
- b) The number of sandwiches made
- c) The shape of the sandwiches
- d) The time it takes to make sandwiches

6. Which of the following represents a function using a formula?

- a) A picture of a pizza
- b) $y = 50x$
- c) A description of the pizza
- d) The number of people eating
- e) A bar graph of pizza toppings

7. Which of the following represents a function using a table?

- a) A list of pizza toppings
- b) A table showing time vs. distance
- c) A description of how to make pizza
- d) The amount of money earned
- e) A verbal description of the pizza making process

8. Which of the following represents a function using a graph?

- a) A written recipe
- b) A graph showing temperature over time
- c) A list of ingredients
- d) The ingredients for pizza
- e) A description of how a pizza tastes

Answer Key

Long Answer Questions - Expected Responses

1. Explain the concept of a function with a real-world example.

Expected Answer: A function is a rule that shows how one value depends on another. For example, the number of pizzas slices eaten determines how many slices are left.

2. Define the domain and range of a function.

Expected Answer: The domain is all possible inputs (x-values); the range is all possible outputs (y-values).

3. Describe three different ways to represent a function.

Expected Answer: A function can be represented by a table, formula, or graph, each providing a different way to visualize and understand the relationship.

4. Give a real-world example of a functional relationship that involves physical activity.

Expected Answer: The amount of time spent exercising directly affects the level of fitness achieved. More exercise leads to better fitness.

5. Describe a financial scenario that represents a functional relationship.

Expected Answer: The amount of money spent on groceries determines the amount remaining in your budget. More spending leaves less money.

6. Describe a scenario that demonstrates a linear functional relationship involving study time and test scores.

Expected Answer: If each hour of study results in 10 points increase, the study hours (x) and test score (y) have a direct relationship; $y = 10x$.

7. Explain the functional relationship between hours of sleep and energy levels, considering potential non-linear aspects.

Expected Answer: As the number of hours of sleep increases, energy levels generally increase as well, though it may plateau or decrease if excessive.

8. Give a real-world example of a functional relationship where a simple equation might not perfectly capture the relationship, describing why.

Expected Answer: The speed of a car and the distance traveled have a functional relationship. The faster the car, the more distance covered, though other factors affect this. A graph would not be a straight line.

Multiple Choice Questions - Correct Answers

1. In the pizza example, which value depends on the number of slices eaten?

Correct Answer: The number of slices remaining

2. In the Ferris wheel example, what represents the domain of the function?

Correct Answer: All possible ages of children allowed on the ride

3. What represents the range in the Ferris wheel example?

Correct Answer: The possible positions a child can occupy in a cabin

4. In the sandwich example, what represents the domain?

Correct Answer: The number of bread slices

5. In the sandwich example, what represents the range?

Correct Answer: The number of sandwiches made

6. Which of the following represents a function using a formula?

Correct Answer: $y = 50x$

7. Which of the following represents a function using a table?

Correct Answer: A table showing time vs. distance

8. Which of the following represents a function using a graph?

Correct Answer: A graph showing temperature over time