

Evaluating Functions Worksheet

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Part 1: Building a Foundation

What is the definition of a function?

Hint: Think about the relationship between inputs and outputs.

- A) A relation where each input has multiple outputs
- B) A relation where each input has exactly one output
- C) A relation with no outputs
- D) A relation with no inputs

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Which of the following are forms in which functions can be represented?

Hint: Consider different ways to express functions.

- A) Equations

- B) Tables
- C) Graphs
- D) Narratives

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Explain what is meant by function notation and provide an example.

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Part 2: Comprehension and Application

What does $f(3)$ represent in the function $f(x) = 2x + 5$?

Hint: Consider what happens when you substitute x with 3.

- A) The input value
- B) The output when $x = 3$
- C) The slope of the function
- D) The y-intercept of the function

What does $f(3)$ represent in the function $f(x) = 2x + 5$?

Hint: Think about the role of the input in the function.

- A) The input value
- B) The output when $x = 3$
- C) The slope of the function
- D) The y-intercept of the function

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Which statements are true about the domain of a function?

Hint: Think about the set of possible input values.

- A) It includes all possible input values
- B) It is always a finite set
- C) It can be restricted by the function's equation
- D) It determines the range

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Describe how the graph of a linear function differs from that of a quadratic function.

Hint: Consider the shape and characteristics of each graph.

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If $f(x) = x^2 - 4x + 4$, what is $f(2)$?

Hint: Substitute x with 2 and simplify.

- A) 0
- B) 4
- C) 8
- D) 12

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Given the function $g(x) = 3x - 7$, which of the following are true?

Hint: Calculate g for different values of x .

- A) $g(0) = -7$
- B) $g(1) = -4$
- C) $g(2) = -1$
- D) $g(3) = 2$

Given the function $g(x) = 3x - 7$, which of the following are true?

Hint: Evaluate $g(x)$ for different values of x .

- A) $g(0) = -7$
- B) $g(1) = -4$
- C) $g(2) = -1$
- D) $g(3) = 2$

Given the function $g(x) = 3x - 7$, which of the following are true?

Hint: Evaluate $g(x)$ at different values.

- A) $g(0) = -7$
- B) $g(1) = -4$
- C) $g(2) = -1$
- D) $g(3) = 2$

Evaluate the function $h(x) = 5x - 9$ for $x = -1$ and $x = 3$. Show your work.

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Part 3: Analysis, Evaluation, and Creation

Which of the following functions is one-to-one and has an inverse?

Hint: Consider the properties of each function.

- A) $f(x) = x^2$
- B) $f(x) = 2x + 3$

- C) $f(x) = x^3 - x$
- D) $f(x) = |x|$

Which of the following functions is one-to-one and has an inverse?

Hint: Consider the properties of functions that allow for an inverse.

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- B) $f(x) = 2x + 3$
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Analyze the function $f(x) = x^2 - 4x + 4$. Which statements are true?

Hint: Consider the characteristics of the quadratic function.

- A) It is a quadratic function
- B) It has a vertex at $(2, 0)$
- C) It opens upwards
- D) It has no real roots

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Break down the steps to find the inverse of the function $f(x) = 2x + 5$.

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Hint: Consider the algebraic manipulations needed to find the inverse.

Break down the steps to find the inverse of the function $f(x) = 2x + 5$.

Hint: Think about how to switch the roles of x and y .

Which of the following statements best evaluates the relationship between a function and its inverse?

Hint: Consider how functions and their inverses interact.

- A) A function and its inverse are always identical
- B) A function and its inverse reflect over the line $y = x$
- C) A function and its inverse have the same domain
- D) A function and its inverse have the same range

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Which of the following statements best evaluates the relationship between a function and its inverse?

Hint: Consider how functions and their inverses relate to each other.

- A) A function and its inverse are always identical
- B) A function and its inverse reflect over the line $y = x$
- C) A function and its inverse have the same domain
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Evaluate the composite function $(f \circ g)(x)$ where $f(x) = x + 2$ and $g(x) = 3x$. Which statements are true?

Hint: Consider how to combine the two functions.

- A) $(f \circ g)(x) = 3x + 2$
- B) $(f \circ g)(x) = 3x + 6$
- C) $(f \circ g)(x) = 3(x + 2)$
- D) $(f \circ g)(x) = 3x + 5$

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Create a real-world scenario where a composite function might be used, and explain how you would set up the functions involved.

Hint: Think about situations where one function depends on another.

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