Evaluating Functions Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the definition of a function?

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

A function is defined as a relation where each input has exactly one output.

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

undefined. A) Equations ✓
undefined. B) Tables ✓
undefined. C) Graphs ✓
undefined. D) Narratives ✓

Functions can be represented in various forms including equations, tables, and graphs.

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Functions can be represented in various forms including equations, tables, and graphs.

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

Function notation is a way to represent functions using symbols, typically f(x), where f indicates the function and x is the input variable.

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Part 2: Comprehension and Application

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

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

f(3) represents the output of the function when the input x is 3.

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f(3) represents the output of the function when the input is 3.

Which statements are true about the domain of a function?

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

The domain of a function includes all possible input values and can be restricted by the function's equation.

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The domain includes all possible input values and can be restricted by the function's equation.

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

A linear function's graph is a straight line, while a quadratic function's graph is a parabola that opens upwards or downwards.

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A linear function's graph is a straight line, while a quadratic function's graph is a parabola.

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

undefined. A) 0 ✓
undefined. B) 4

undefined. C) 8
undefined. D) 12

f(2) evaluates to 0 when you substitute 2 into the function.

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

undefined. A) 0 ✓
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f(2) evaluates to 0.

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

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undefined. D) 12

f(2) evaluates to 0 when you substitute and simplify the expression.

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

undefined. A) g(0) = -7 ✓
undefined. B) g(1) = -4 ✓
undefined. C) g(2) = -1
undefined. D) g(3) = 2 ✓

The true statements about g(x) can be verified by substituting the values into the function.

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Evaluate g(x) at specific points to determine the truth of the statements.

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

To evaluate h(-1) and h(3), substitute -1 and 3 into the function and calculate the results.

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

Evaluate h(-1) and h(3) to find the outputs.

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

Evaluate h(-1) and h(3) by substituting and simplifying.

Part 3: Analysis, Evaluation, and Creation

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

undefined. A) f(x) = x^2
undefined. B) f(x) = 2x + 3 ✓
undefined. C) f(x) = x^3 - x
undefined. D) f(x) = |x|

The function f(x) = 2x + 3 is one-to-one and has an inverse.

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A one-to-one function has a unique output for each input, allowing for an inverse.

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

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

The function is a quadratic function with a vertex at (2, 0) and opens upwards.

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

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

The function is quadratic, has a vertex at (2, 0), opens upwards, and has no real roots.

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

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The function is quadratic, has a vertex, opens upwards, and has no real roots.

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

To find the inverse, replace f(x) with y, switch x and y, and solve for y.

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To find the inverse, swap x and y and solve for y.

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

To find the inverse, switch x and y, then solve for y.

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

undefined. A) A function and its inverse are always identical

undefined. B) A function and its inverse reflect over the line y = x ✓

undefined. C) A function and its inverse have the same domain

undefined. D) A function and its inverse have the same range

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A function and its inverse reflect over the line y = x.

Evaluate the composite function (f∘g)(x) where f(x) = x + 2 and g(x) = 3x. Which statements are true?

undefined. A) (f∘g)(x) = 3x + 2 ✓

undefined. B) (f∘g)(x) = 3x + 6

undefined. C) (f∘g)(x) = 3(x + 2)

undefined. D) (f∘g)(x) = 3x + 5

The composite function (f∘g)(x) results in a new function based on the outputs of g(x) fed into f(x).

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(f∘g)(x) = 3x + 2 is the correct evaluation of the composite function.

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undefined. B) (f∘g)(x) = 3x + 6 ✓

undefined. C) (f∘g)(x) = 3(x + 2)

undefined. D) (f∘g)(x) = 3x + 5

The composite function combines the outputs of f and g.

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

A real-world scenario could involve calculating total costs where one function determines the price per item and another determines the quantity.

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

A real-world scenario could involve calculating total costs based on unit price and quantity.

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

A composite function can model scenarios like distance and time, where one function depends on another.