

College Algebra / Module 9 - Relations and Functions

These notes didn't save! I'll try and go back and watch the video soon and make it all match up!

Module 9 - Functions



Watch on YouTube

Topic 1: Identifying functions from relations

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Topic 2: Vertical line test

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Topic 3: Evaluating a rational function: Problem type 1

Problem 1: Evaluate the rational function $f(x) = (2x + 1)/(x - 3)$ at $x = 4$. Show all steps and simplify the result.

Problem 2: For the function $g(x) = (x - 2)/(x + 5)$, find $g(-1)$. Provide the computation and the final value.

Topic 4: Variable expressions as inputs of functions: Problem type 1

Problem 1: Given $f(x) = 3x - 5$, find $f(a + 2)$. Substitute the expression and simplify the result.

Problem 2: For the function $h(x) = x^2 + 2x$, evaluate $h(2x - 1)$. Show the substitution and simplify the expression.

Topic 5: Domain of a rational function: Excluded values

Problem 1: Find the domain of the rational function $f(x) = 1/(x - 4)$. Identify any excluded values and express the domain in interval notation.

Problem 2: Determine the domain of $g(x) = (3x + 2)/(x^2 - 9)$. Find all values that make the denominator zero and state the domain.

Topic 6: Domain of a square root function: Basic

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Problem 1: Find the domain of the function $f(x) = \sqrt{x - 3}$. Determine the values of x that make the expression under the square root non-negative.

Problem 2: For the function $g(x) = \sqrt{2x + 5}$, identify the domain. Solve the inequality inside the square root and express the domain in interval notation.

Topic 7: Determining if graphs have symmetry with respect to the x-axis, y-axis, or origin

Topic 8: Finding a difference quotient for a linear or quadratic function

Problem 1: For the function $f(x) = 2x + 3$, find the difference quotient $[f(x + h) - f(x)]/h$. Simplify the expression fully.

Problem 2: Given the quadratic function $g(x) = x^2 - 4x$, compute the difference quotient $[g(x + h) - g(x)]/h$ and simplify the result.

Topic 9: Domain and range of a linear function that models a real-world situation

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