

NAME:

BRONX COMMUNITY COLLEGE
of the City University of New York
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MTH30 Section B04

Quiz 1 Sample

Instructions

Solve all problems and mark your answers clearly. Show all work, using additional paper if needed.

1. Suppose $f(x) = x^2$ and $g(x) = (x - 1)^2 + 2$.
Graph both functions, showing the graph of g as a transformation of the graph of f . To do this, highlight three points on the graph of f together with three corresponding points on the graph of g . Describe the transformation in words.
2. What is the difference quotient of the function
 $f(x) = 2x^2 - 5x + 3$?
3. Suppose $g(x) = \sqrt{x + 3}$. Give the domain and range of g .
Does g have an inverse? If it does, give the expression for $g^{-1}(x)$. Give the domain and range of g^{-1} .
4. Graph the function $f(x) = (x + 3)^2 - 4$. Graph and give the equation for the axis of symmetry. Be sure to include the vertex, the x and y intercepts, and the point symmetric with the y intercept.
5. Graph the function $f(x) = x^4 - 8x^2 + 16$. Find x -intercepts (with multiplicities of zeros) and the y -intercept. Explain the end-behavior and number of turning points for this graph.