MATH 1023 COLLEGE ALGEBRA Quiz 7 Name:
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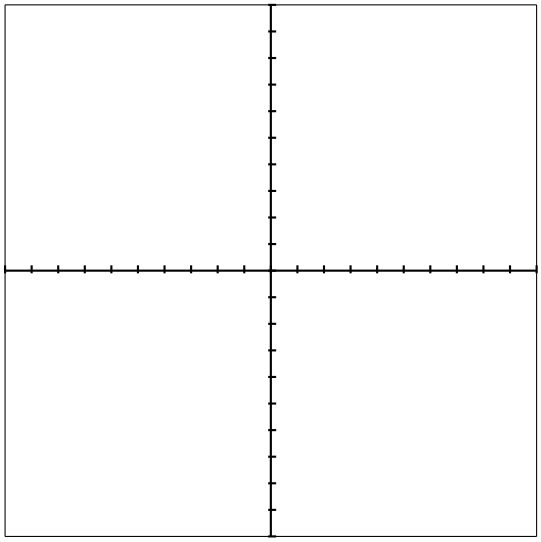
Problem 1. Analyze the function $f(x) = -(x-3)^2 + 4$ by completing the form and sketching the graph.



Problem 1: $f(x) = -(x-3)^2 + 4$

Standard Form:

Shifted Form:

a: **b:** **c:** **h:** **k:**

y-intercept:

x-intercept(s):

Vertex:

Problem 2. A rock is dropped off a 180 meter cliff. The function expressing the height of the rock in meters at time t seconds is

$$h(t) = 180 - 5t^2.$$

When does the rock hit the ground?

Problem 3 (Extra Credit). The locus of the equation $x^2 + y^2 = 4$ is a circle of radius 2 centered at the origin. The line $y = 2x$ intersects this circle in two points. Find these points. Justify your answer.