Name:_____

QUIZ 3
305G 9-10-08

1. Explain why saying that a set of points in the xy-plane satisfies the vertical line test is the same as saying that a set of points in the xy-plane is a function.

2. The absolute value function $f(x) = |x|$ can be written as the piecewise-defined function

$$\mathbf{f(x)} = \begin{pmatrix} \_\_\_\_\_ & \text{if} \quad x \geq 0 \\ \\ \_\_\_\_\_ & \text{if} \quad x < 0 \end{pmatrix}$$

3. Let f be the function $f(x) = -(x^2) + 3$

a. What is the range of f?
b. On what intervals is f increasing?
   On what intervals is f decreasing?
   Is f constant anywhere?
c. Is f an even function? Is f an odd function? Explain.
d. At what real number does f have a local maximum?
e. What is this local maximum of f?