MATH 140, Section K2
September 11, 2009

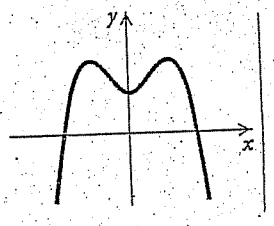
Quiz #3

Name: _____

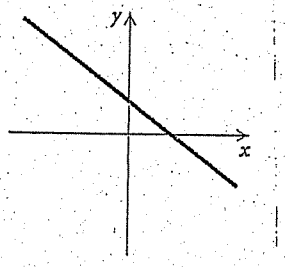
READ AND FOLLOW ALL DIRECTIONS. CIRCLE YOUR FINAL ANSWERS. SHOW ALL WORK TO RECEIVE FULL CREDIT. NO CALCULATORS. DUE M 9/14

1. (2 points each) Determine whether the function given is odd, even, or neither. You must provide an accurate reason to receive credit.

(a)



(b)



(c) $f(x) = -\frac{4}{x}$

(d) $g(x) = \sqrt{x^2 + 1}$

2. (2 points) Identify the domain of $f(x) = \frac{1}{\sqrt{5x-5}}$.

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3. (10 points) Consider the piecewise-defined function

$$f(x) = \begin{cases} 2 - x & \text{if } 0 \leq x < 1 \\ \frac{1}{x} & \text{if } 1 \leq x < 4 \\ \sqrt{x} & \text{if } 4 \leq x \leq 9 \end{cases}$$

(a) Find $f(1)$ and $f(4)$.

(b) Sketch the graph of $f(x)$. Label at least 4 points on the graph.

(c) Find the interval(s) on which f is decreasing.

(d) Find the interval(s) on which f is increasing.

(e) Does $f(x)$ have a local maximum or local minimum? If yes, identify them; if not, explain.

4. (2 points) EXTRA CREDIT. Name a function $f(x)$ which is both even and odd. To receive credit, prove that your function IS both even and odd.