Name.....

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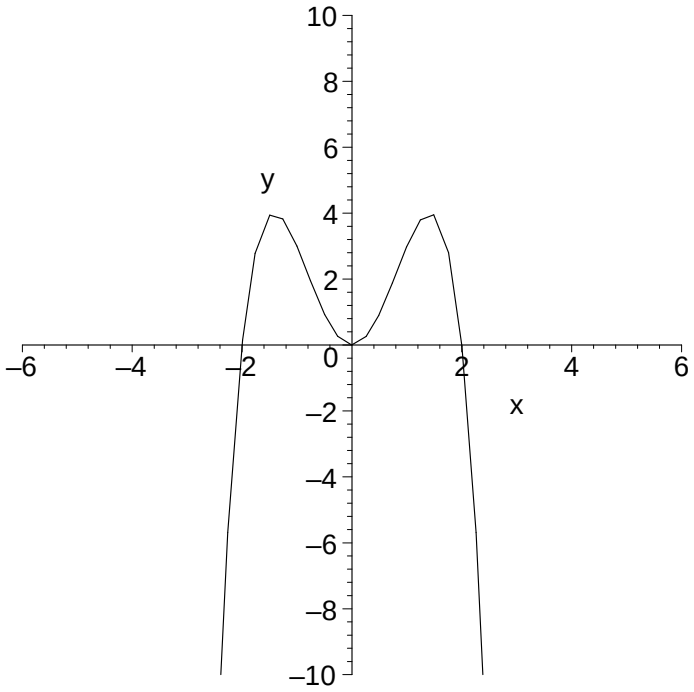
Math 1210-3

Quiz 3

January 25, 2008

Show all work for complete credit! There are two sides to this quiz!

Here is a computer sketch of the graph $y = f(x)$, for the polynomial function $f(x) = -x^4 + 4x^2$. All the problems on the quiz are related to this particular function and its graph.



1a) How is the graph of $y = -2x^4 + 8x^2$ related to the graph of $y = f(x)$ shown above? Answer this question in words, and then carefully sketch the graph of $y = -2x^4 + 8x^2$ into the picture above.

(2 points)

1b) How is the graph of $y = -(x+3)^4 + 4(x+3)^2 - 1$ related to the graph of $y = -x^4 + 4x^2$? Answer this question in words, and then carefully sketch the new graph into the picture above.

(2 points)

1c) Is the function $f(x) = -x^4 + 4x^2$ even, odd, or neither? Explain your answer, using the definition of what even or odd means. How is this even or odd property reflected in a symmetry property of the graph $y = -x^4 + 4x^2$?

(2 points)

1d) Let $g(x) = \sqrt{x}$, and $f(x) = -x^4 + 4x^2$ as always. What is the formula for $g\,f$? What is the natural domain of this new function?

(2 points)

1e) Using the same functions as in part (1d), What is the formula for the function $g \circ f$? . What is the natural domain for this new function? (Hint: Let the graph on page one help you.)

(2 points)