Exercise 1.5.4

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To make L¡0 but less than infinity (and thus f(x)=O(g(x))), g(x) must grow about as fast as f(x). Looking at the dominant term of f(x), x^4, let g(x) = x^4. Using the Limit Theorem, and applying L'Hopital's Rule: L = $\lim_{x\to\infty} = f/g$
= $5x^4 + 3x^2 + 10,000/x^4$
'= $20x^3 + 6x/4x^3$
'= $60x^2 + 6/12x^2$
'= $120x/24x$
'= $120/24$
'= 5
Because L = 0, f(x) = o(g(x)) and f(x) = O(g(x))