

# Math175 - Discrete Mathematics - Spring 2005

## Quiz #9, May 16, 2005

In the following problems you are required to show all your work and provide the necessary explanations everywhere to get full credit.

1. Find all sequences that satisfy the recurrence  $a_k = a_{k-1} + 6a_{k-2}$ ,  $k \geq 2$ , and have the form  $1, t, t^2, \dots, t^n, \dots$ , where  $t$  is nonzero.

2. Use the definition of  $O$ -notation to show that  $5x^9 - 20x^5 + 2x^3 - x + 15$  is  $O(x^9)$ .