

Foundation Exam Practice Questions (taken from Dec 2011 exam)

1) (10 pts) Recursion. Write a **recursive** function that deletes every other node in a linked list pointed to by head, which is a parameter to the function. Specifically, make sure you delete the second, fourth, sixth, etc. nodes and return a pointer to the front of the new list. If the list has zero or one item in it, the list should be unchanged and a pointer to its front should be returned. Your function should make use of the following struct node and function prototype:

```
struct node {
    int data;
    struct node *next;
};
```

```
struct node* delEveryOther(struct node *head);
```

2) (15 pts) PRF (Induction)

Prove, using mathematical induction, that for all non-negative integers n , $10 \mid (9^{n+1} + 13^{2n})$.