1993 Paper 1 Question 9

A suite of Modula-3 procedures is being developed to handle arbitrarily large non-negative integers.

A test program for handling such numbers includes the following `TYPE` declaration:

```
TYPE
  Digit = [0..9];
  RefBigNo = REF BigNo;
  BigNo = RECORD dig:Digit:=0;  rest: RefBigNo:= NIL END;
```

A variable of type `RefBigNo` is a reference to an arbitrarily large number, represented as a sequence of base-10 digits stored in reverse order. The chosen data structure is a record which consists of the *last* digit of the number and a reference to the remaining digits.

Write a procedure `Add` which will add two of these large numbers and a procedure `Print` which will convert one such number to type `TEXT`. The following signatures might be appropriate for the two procedures:

```
PROCEDURE Add(a, b: RefBigNo; carry:=0): RefBigNo =
```

and

```
PROCEDURE Print(N:RefBigNo; first:= TRUE): TEXT =
```