

(1992 ACM Mid-Central Regional Programming Contest  
Sample Solution to Problem #3 - Digit Twirling)

```
program twirl;
const
  DigStr :string = '0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ';
var
  Start_Base, End_Base : 2..36;
  Rotate : integer;
  Number :string;
  N: integer;
  ifile,ofile: text;

procedure Shift_Right;
var
  i: integer;
  SaveDigit: char;
begin
  SaveDigit := Number[length(Number)];
  for i := length(Number) downto 2 do begin
    Number[i] := Number[i-1];
  end;
  Number[1] := SaveDigit;
end;

procedure Shift_Left;
var
  i: integer;
  SaveDigit: char;
begin
  SaveDigit := Number[1];
  for i := 1 to length(Number)-1 do begin
    Number[i] := Number[i+1];
  end;
  Number[length(Number)] := SaveDigit;
end;

procedure Read_Data;
var
  i,j:integer;
  c:char;
  ReverseDirection: boolean;
begin
  Inc(N);
  Read(ifile,Start_Base);
  if Start_Base > 0 then begin
    write(ofile, '(',Start_Base:1);
    Number:='';
    j:=1;
    Read(ifile,c);
    repeat
      Read(ifile,c);
      if c<>' ' then
        begin
          Number:=Number+c;
        end;
    until c=' ';
    Readln(ifile,Rotate,End_Base);
    write(ofile, ' ',Number, ' ',Rotate:1, ' ',End_Base:1,') = ');
    ReverseDirection := (Rotate < 0);
```

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    Rotate := abs(Rotate) mod length(Number);
    for i := 1 to Rotate do begin
        if ReverseDirection then Shift_Right
        else Shift_Left;
    end;
end;
end;

procedure Process_Data;
var
    i,j:integer;
    Left : boolean;
    Place,Carry: integer;
    NumArray : array[1..30] of byte;
    Answer : array[1..30] of byte;
begin
    for i:=1 to 30 do
        NumArray[i]:=0;
    for i:=1 to Length(Number) do
        if Number[i] in ['0'..'9'] then
            NumArray[i]:=Ord(Number[i])-$30
        else
            NumArray[i]:=Ord(UpCase(Number[i]))-Ord('A')+10;
    Carry:=0;
    j:=1;

    repeat
        Left:=False;
        for i:= 1 to Length(Number) do
            begin
                Place:=(Carry*Start_Base+ NumArray[i]) div End_Base;
                Carry:=(Carry*Start_Base+ NumArray[i]) mod End_Base;
                NumArray[i]:=Place;
                if Place<>0 then
                    Left:=true;
            end;
            Answer[j]:=Carry;
            Carry:=0;
            inc(j);
        until not Left;
        for i:=j-1 downto 1 do
            write(ofile,DigStr[Answer[i]+1]:1);
        writeln(ofile);
    end;

begin
    assign(ifile,'twirl.in');
    reset(ifile);
    assign(ofile,'twirl.out');
    rewrite(ofile);
    N:=0;
    repeat
        Read_Data;

        if Start_Base > 1 then Process_Data;

        until Start_Base < 2;
        close(ifile);
        close(ofile);
    end.

```