

Exercice 1

```

program td3ex1;
var a,b,c:real;
begin  a:=1/3;b:=1/2;
      repeat  c:=(a+b)/2;
              if ln(c)-ln(c+1)+1/c>1 then a:=c else b:=c;
      until (b-a)<1E-2;
      writeln('alpha est compris entre ',a,' et ',b); readln;
end.      On trouve  $0,4635 < \alpha < 0,4675$ 

```

Exercice 2

Il s'agit d'une dichotomie donc $\forall n \in \mathbb{N}, a_n \in [\sqrt{2}, 2], b_n \in [\sqrt{2}, 2]$.

```

program ecricome;
var a,b,c:real;
    i:integer;
begin
  a:=sqrt(2);b:=2;
  for i:=1 to 7 do
    begin
      c:=(a+b)/2;
      if (1-a*a*ln(a))*(1-c*c*ln(c))<0 then b:=c
      else a:=c;
    end;
  writeln('a7 = ',a);
  writeln('b7 = ',b);
  readln;
end.
On trouve  $a_7 = 1,528649\dots$  et  $b_7 = 1,533201\dots$ 

```