

Corrigé 2019

Q1 :

On sait que $0 < \alpha < 1$; que $a \leq \alpha \leq b$; que $b - a \leq \varepsilon$ et que $sh(\alpha) = 1$

```
function [a, b] = dichotomie(eps)
```

```
    a = 0
```

```
    b = 1
```

```
    while b - a > eps
```

```
        c = (a + b)/2
```

```
        if sinh(c) < 1 then a = c
```

```
            else b = c
```

```
        end
```

```
    end
```

```
endfunction
```

Q 2 :

On sait que : $I_0 = \alpha$; que $\alpha \simeq 0.881$ et que $I_{n+1} = \frac{\sqrt{2}}{2n+2} - \left(\frac{2n+1}{2n+2}\right) I_n$.

```
I = 0.881
```

```
for i = 1 to n do
```

```
    I = (sqrt(2)/(2 * i + 2) - (2 * i + 1)/(2 * i + 2) * I
```

```
end
```

```
endfunction
```