

# Chapter 1

## Solution approximation

### 1.1 The Bisection Method

#### Exercise 1

Use the Bisection method to find  $p_3$  for  $f(x) = \sqrt{x} - \cos x$  on  $[0, 1]$ .

#### Solution 1

Table of iteration for  $f(x) = \sqrt{x} - \cos x$  on  $[0, 1]$ :

n	$a_n$	$b_n$	$p_n$	$f(p_n)$
1	0	1	0.5	-0.170 475 781
2	0.5	1	0.75	0.134 336 535
3	0.5	0.75	0.625	-0.020 393 704

So  $p_3 = 0.625$ .