*False position method*

(1) *initial value* $a_0,\ b_0 \quad f(a_0)f(b_0) \leq 0$

(2) $x_n = \dfrac{a_n f(b_n) - b_n f(a_n)}{f(b_n) - f(a_n)}$

$f(x_n) \leq \varepsilon \ \Rightarrow \ answer = x_n$

$a_{n+1} = x_n,\ b_{n+1} = b_n \quad f(a_n)f(x_n) \geq 0$

$a_{n+1} = a_n,\ b_{n+1} = x_n \quad f(b_n)f(x_n) \geq 0$

| *step* | $x$ | $f(x)$ | $\lvert x(i) - x(i-1) \rvert$ |
|---|---|---|---|
| $x2$ | $-0.6851$ | $-0.45285$ | 0.31493 |
| $x3$ | $-0.8414$ | $-0.07088$ | 0.15864 |
| $x4$ | $-0.8625$ | $-0.00878$ | 0.13745 |
| $x5$ | $-0.8651$ | $-0.00105$ | 0.13488 |

$p_3 = -0.8414$