

2.

$$f(x) = e^{2x-1} + 3x - 7$$

The equation $f(x) = 0$ has a single root α

(a) Show that α lies in the interval $[1.1, 1.2]$

(2)

The iterative formula

$$x_{n+1} = \frac{1 + \ln(7 - 3x_n)}{2}$$

is used to find an approximate value for α

Starting with $x_1 = 1.1$

(b) calculate, giving each answer to 4 decimal places,

(i) the value of x_2

(ii) the value of α

(3)