

1- Solve the equation

$$x + \ln x - 5 = 0 \quad \text{in } [3, 4]$$

with  $|\text{error}| \leq 10^{-2}$

(a) Using Bisection method

$$\left. \begin{aligned} f(3) &= -0.9014 < 0 \\ f(4) &= 0.3863 > 0 \end{aligned} \right\}$$

$$c_0 = \frac{3+4}{2} = 3.5$$

$$f(3.5) = -0.2472$$

$$c_1 = \frac{3.5+4}{2} = 3.75$$

(b) Using False position method  $a_0$   $b_0$   
[3, 4]

$$c_0 = b_0 - \frac{f(b_0)(b_0 - a_0)}{f(b_0) - f(a_0)} = 4 - \frac{f(4)(4-3)}{f(4) - f(3)} = 3.700057$$

$$f(c_0) > 0$$

$$c_1 = 3.700057 - \frac{f(3.700057)(3.700057 - 3)}{f(3.700057) - f(3)} = 3.6949$$

(2) Estimate the following using 4-digit arithmetic (rounding)

$$\frac{17}{2017} + \frac{317}{7} + \frac{33}{8}$$


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$$11 - \frac{13}{1313}$$

$$= 4.498$$