$I(f) = \int_1^2 x \ln x \, dx = 0.636629$

Dr's Original Formula not giving the answer

$S_n(x) = \sum_{i=1}^{n/2} \frac{h}{3} \left(f(x_{2i-2}) + 4f(x_{2i-1}) + f(x_{2i}) \right)$

BETTER FOLLOW THIS ONE!!!

Formula 1

$S_n(x) = \frac{h}{3} \sum_{i=1}^{n/2} f(x_{2i-2}) + 4f(x_{2i-1}) + f(x_{2i})$

$h = \frac{b-a}{N}$

$\text{if } h = \frac{1}{4} = \frac{2-1}{4} = \frac{1}{4}$ #

$= \frac{0.25}{3} \sum_{i=1}^{2} f(x_{2i-2}) + 4f(x_{2i-1}) + f(x_{2i})$

$x_0 = 1$

$x_1 = 5/4$

$x_2 = 6/4 = 3/2$

$x_3 = 7/4$

$x_4 = 2$

$= \frac{0.25}{3} \left[\left(f(x_0) + 4f(x_1) + f(x_2) \right) + \left[f(x_2) + 4f(x_3) + f(x_4) \right] \right]$

$= \frac{0.25}{3} \left(0 + 4(0.2789) + 2(0.60819) + 4(0.979327) + 1.38629 \right)$

$= 0.6362481667$

$\text{Error} = |\text{Exact} - S_2(x)|$

$= |0.636629 - 0.6362481667|$

$= 3.52 \times 10^{-4}$