

#Jenny



Finally I get this ebook, thanks for all these I can get now!

#Rio



Cool! I'am really happy

#Markus Jensen



I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu



wtf this great ebook for free?!

#Che Salsa



My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler



so many fake sites. this is the first one which worked! Many thanks

Local Error - Numerical Analysis (computer science)

Just show how the local error is 28% (show all work... the part marked in red box).

Local error I believe you would need to use local truncation error (Taylor Series)

Example 1: Euler's Method

Solve numerically: $\frac{dy}{dx} = -2x^3 + 12x^2 - 20x + 8.5$

From $x=0$ to $x=4$ with step size $h=0.5$

initial condition: $(x=0, y=1)$

Exact Solution: $y = -0.5x^4 + 4x^3 - 10x^2 + 8.5x + 1$

Numerical

Solution: $y_{i+1} = y_i + f(x_i, y_i)\Delta x$

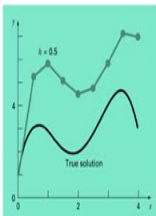
$y(0.5) = y(0) + f(0, 1) \cdot 0.5 = 1 + 8.5 \cdot 0.5 = 5.25$
(true solution at $x=0.5$ is $y(0.5) = 3.22$ and $e_1 = 69\%$)

$y(1) = y(0.5) + f(0.5, 5.25) \cdot 0.5$
 $= 5.25 + (-2(0.5)^3 + 12(0.5)^2 - 20(0.5) + 8.5) \cdot 0.5$
 $= 5.25 + 0.625 = 5.875$

(true solution at $x=1$ is $y(1) = 3$ and $e_2 = 96\%$)
 $y(1.5) = y(1) + f(1, 5.875) \cdot 0.5 = 5.125$

...

x	y_{true}	y_{num}	total error (%)	local error (%)
0	1	1	NA	NA
0.5	3.25	3.218	63.1	63.1
1	5.875	3	95.8	28
1.5	5.125	2.218	131	1.41
2	4.5	2	125	20.5



[Download PDF version of : Numerical Analysis Questions And Answers](#)