

(iv)

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Problem Name : tma3

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Current Package : Numsol

Function is $Y' = X^{0.5} - Y^{0.5}$

	Problem 1	Problem 2	Problem 3	Problem 4
Step :	0.0002	0.00025	0.0005	0
METHOD:	TAYLOR 2	TAYLOR 2	TAYLOR 2	
X 0=1	0.5	0.5	0.5	—
X 1=1.1	0.5306908306	0.5306908308	0.5306908319	—
X 2=1.2	0.5639555863	0.5639555866	0.5639555885	—
X 3=1.3	0.5994952738	0.5994952742	0.5994952767	—
X 4=1.4	0.6370606496	0.63706065	0.637060653	—
X 5=1.5	0.6764423163	0.6764423168	0.6764423201	—
X 6=1.6	0.7174630184	0.7174630188	0.7174630225	—
X 7=1.7	0.7599716103	0.7599716108	0.7599716146	—
X 8=1.8	0.8038383075	0.803838308	0.803838312	—
X 9=1.9	0.848950922	0.8489509225	0.8489509265	—
X 10=2	0.8952118607	0.8952118612	0.8952118652	—

For step lengths of 0.0002 and 0.00025 the values of $Y(2)$ are the same to 8 significant figures. Hence to 3 significant figures $Y(2) = 0.89521186$. I could have used a step length of 0.0004, but this is not an option in Numsol, so I selected from the menu step lengths of 0.0002, 0.00025 and 0.0005 and compared values of $Y(2)$. For step lengths 0.0002 and 0.00025, the values of $Y(2)$ are the same to 8 significant figures.

Is there not the case?
It would require 2500 steps.

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