$C = 0.893940006 - 0.8945781089$
$0.02 - 0.01$
$= -0.0638102$ ✓

For Y_N to be an accurate estimate to 8 decimal places $|Y_N - y(x^*)| \leq 0.5 \times 10^{-8}$ ✓
$|Y_N - y(x^*)| \simeq Ch$
$0.5 \times 10^{-8} \simeq 0.0638102h$ ✓
$h = 7.835737786 \times 10^{-8}$ ✓

The number of steps needed to calculate $Y(2)$ correct to 8 d.p. would therefore be: $\frac{1}{7.835737786 \times 10^{-8}} = 1.276204 \times 10^{7}$ ✓ 2/2

(Probably greater, since $1/h$ must be an integer; if h is chosen to be 5×10^{-8}, the number of steps needed would be 2×10^{7}) ✓
This would be almost impossible for man and paper, but perfectly feasible for man and computer. However, other methods may be more suitable, and more accurate. Eulers method is the most inaccurate usually; I would say it is not sensible to use it to calculate to such high precision. ✓ 1/1.

ii)

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Problem Name : tma3

Students Name : paul vas

Current Package : Numsol

****

Function is Y' = X^0.5-Y^0.5

	Problem 1	Problem 2	Problem 3	Problem 4
Step :	0.01	0.1	0.05	0
METHOD:	TAYLOR 2	TAYLOR 2	TAYLOR 2	
X 0=1	0.5	0.5	0.5	
X 1=1.1	0.5306914146	0.530753788	0.5307059289	
X 2=1.2	0.5639566155	0.5640664125	0.5639821819	
X 3=1.3	0.5994966411	0.5996423363	0.5995305871	
X 4=1.4	0.6370622718	0.6372349498	0.6371025278	
X 5=1.5	0.6764441289	0.6766368705	0.6764890866	
X 6=1.6	0.7174649708	0.7176723896	0.7175133768	
X 7=1.7	0.7599736633	0.760191554	0.7600245377	
X 8=1.8	0.80384043	0.8040655022	0.8038930051	
X 9=1.9	0.8489530896	0.8491827636	0.8490067629	
X10=2	0.8952140543	0.8954463055	0.895268352	

1/1

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