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Problem Name : tma2

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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 : 0.05		0.02	0.01	0
METHOD: EULER		EULER	EULER	
X 0=1	0.5	0.5	0.5	
X 1=1.1	0.5300100455	0.5304230741	0.5305576934	—
X 2=1.2	0.5627210357	0.5634696023	0.5637138695	—
X 3=1.3	0.5978092203	0.5988309931	0.5991647851	—
X 4=1.4	0.6350057842	0.6362504105	0.6366574386	—
X 5=1.5	0.6740858141	0.6755124326	0.6759794495	—
X 6=1.6	0.7148597072	0.7164350037	0.7169511847	—
X 7=1.7	0.7571664514	0.7588631375	0.7594195954	—
X 8=1.8	0.8008683397	0.8026639609	0.8032533658	—
X 9=1.9	0.8458467919	0.8477227904	0.8483390699	—
X 10=2	0.8919990312	0.893940006	0.8945781089	—

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 as in the last MA,
 you should illustrate this with
 your values either by
 drawing a graph or getting
 the computer to do it for you.
 (or get it in ppt (iii))
 Once you have shown
 $y(2) \propto h$
 then your work below
 follows.

The global error in Euler's method is proportional
 to h for small step lengths.

$$\text{i.e. } Y_N - y(x^*) \approx Ch$$

For two Y_N and h

$$Y_{N_1} - y(x^*) \approx Ch_1$$

$$Y_{N_2} - y(x^*) \approx Ch_2$$

$$Y_{N_1} - Y_{N_2} \approx C(h_1 - h_2)$$

$$C \approx \frac{Y_{N_1} - Y_{N_2}}{h_1 - h_2}$$

$$h_1 - h_2$$

$$\text{for } h_1 = 0.02, Y_{N_1} (= Y_{10}) = 0.893940006$$

$$h_2 = 0.01, Y_{N_2} (= Y_{10}) = 0.8945781089$$