

$$Y_N - y(x^*) \approx Ch^2$$

$$h=0.01, y(2)=0.895214053$$

$$0.895214053 - y(x^*) \approx C \times 0.01^2 \quad (1)$$

$$h=0.05, y(2)=0.895268352$$

$$0.895268352 - y(x^*) \approx C \times 0.05^2 \quad (2)$$

Eliminate  $y(x^*)$  by subtracting

(1) from (2)

$$5.4299 \times 10^{-5} = 0.0024C$$

$$C = 0.022624583$$

For accuracy to 8dp,  $|Y_N - y(x^*)| \leq 0.5 \times 10^{-8}$

$$\text{i.e. } 0.5 \times 10^{-8} = Ch^2$$

$$h^2 = \frac{0.5 \times 10^{-8}}{0.022624583} = 2.209985483 \times 10^{-7}$$

$$h = 4.70104827 \times 10^{-4}$$

If  $h$  is to divide 1 exactly, put it equal to  $4 \times 10^{-4}$

3/3.