## RICHARDSON EXTRAPOLATION:

DO ONE STEP TO GET AN IMPROVED SOLN. @ $x = 1$ FOR PROB 1

→ USING VALUES OBTAINED FROM THE CASES IN CUTION:

$h = 0.01$, $= 0.03$

THEN COMPARE W/ THE EXT SOLN.

$y' = 2y$

$y(0) = 1$

$y(t) = 2e^t$

APPROXIMATE $y(1)$ BY RICHARDSON EXTRAPOLATION ONE STEP

→ @ $h = 0.01, 0.05$

EXAMPLE 8.8 (HEATH)

"IMPROVE ACCURACY OF A FINITE DIFFERENCE APPROX. OF $f(x) = \sin(x)$ ... @ $x = 1$

NOTES:

$F(h) = a_0 + a_1 h + O(h^2)$ → IMPLIES $p = 1$, $r = 2$

IN THE GENERAL $F(h) = a_0 + a_1 h^p + O(h^r)$