

WANT 2 SOLN

(1) $y = 2x$: w/ FIRST GUESS (?) $y_0 = 1$

$$\frac{dy}{dx} = f(y) = 2y$$

(2) XCT SOLN =

(x) :

USE STEP SIZES $h = 0.1$;
 $h = 0.05$;
 $h = 0.001$

→ PERFORM FIRST 2 STEPS BY HAND... ($y_1 = ?$, $y_2 = ?$)

WRITE SMALL PROG. TO COMPUTE THE 'SOLN' @ $x = 1$

FIND SOLN FOR

$y_1(x=1)$, $y_2(x=1)$ BY HAND, THEN ...?

→ FIND NXT THE XCT SOLN ... (TIME-NEGLIGIBLE)

→ EXAMPLE:

(1) $y' = y$, $y(0) = 1$

$$\frac{dy}{dt} = f(y) = y$$

(2) XCT SOLN = $y(t) = e^t$