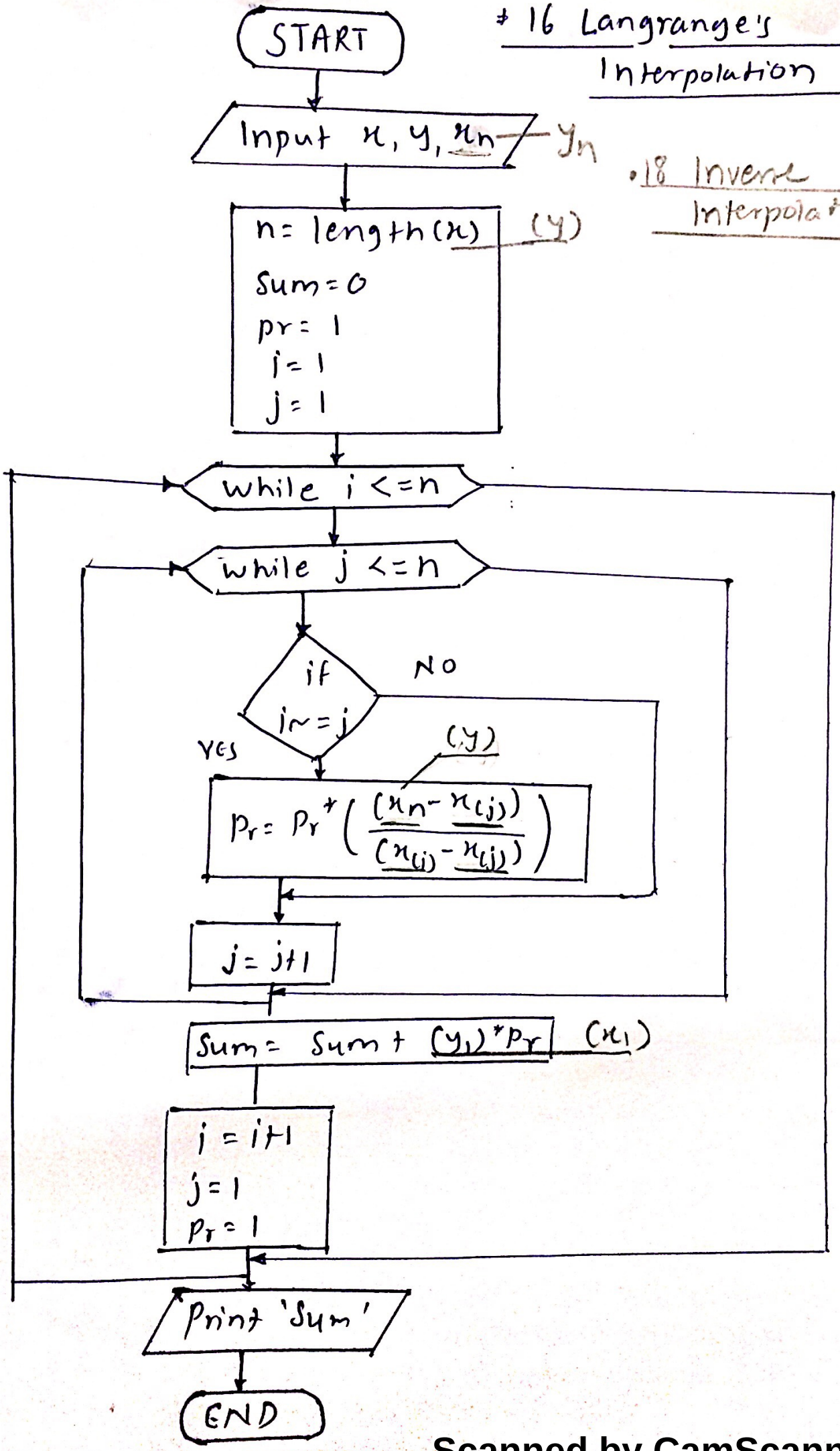
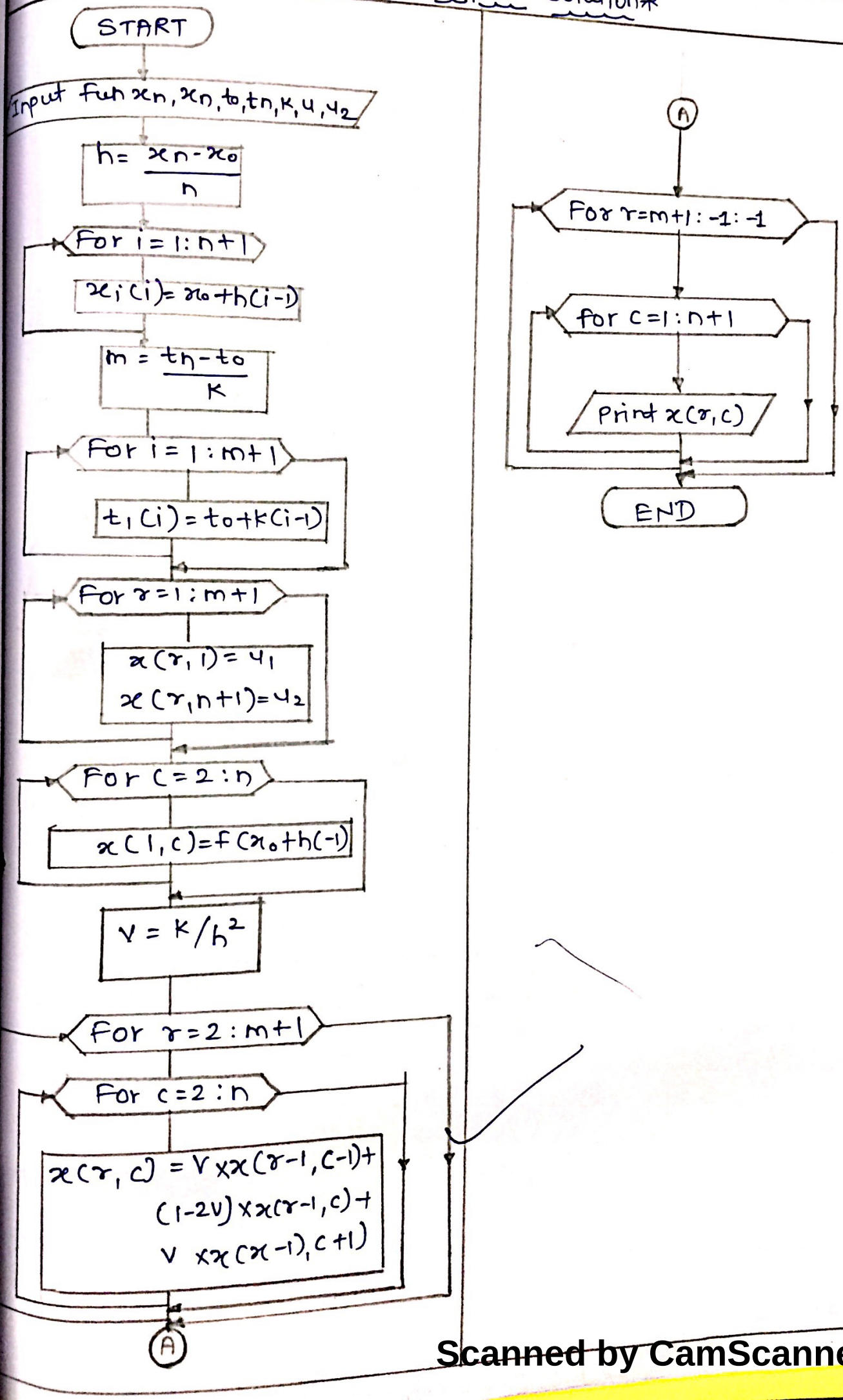
* 16 Langrange's Interpolation

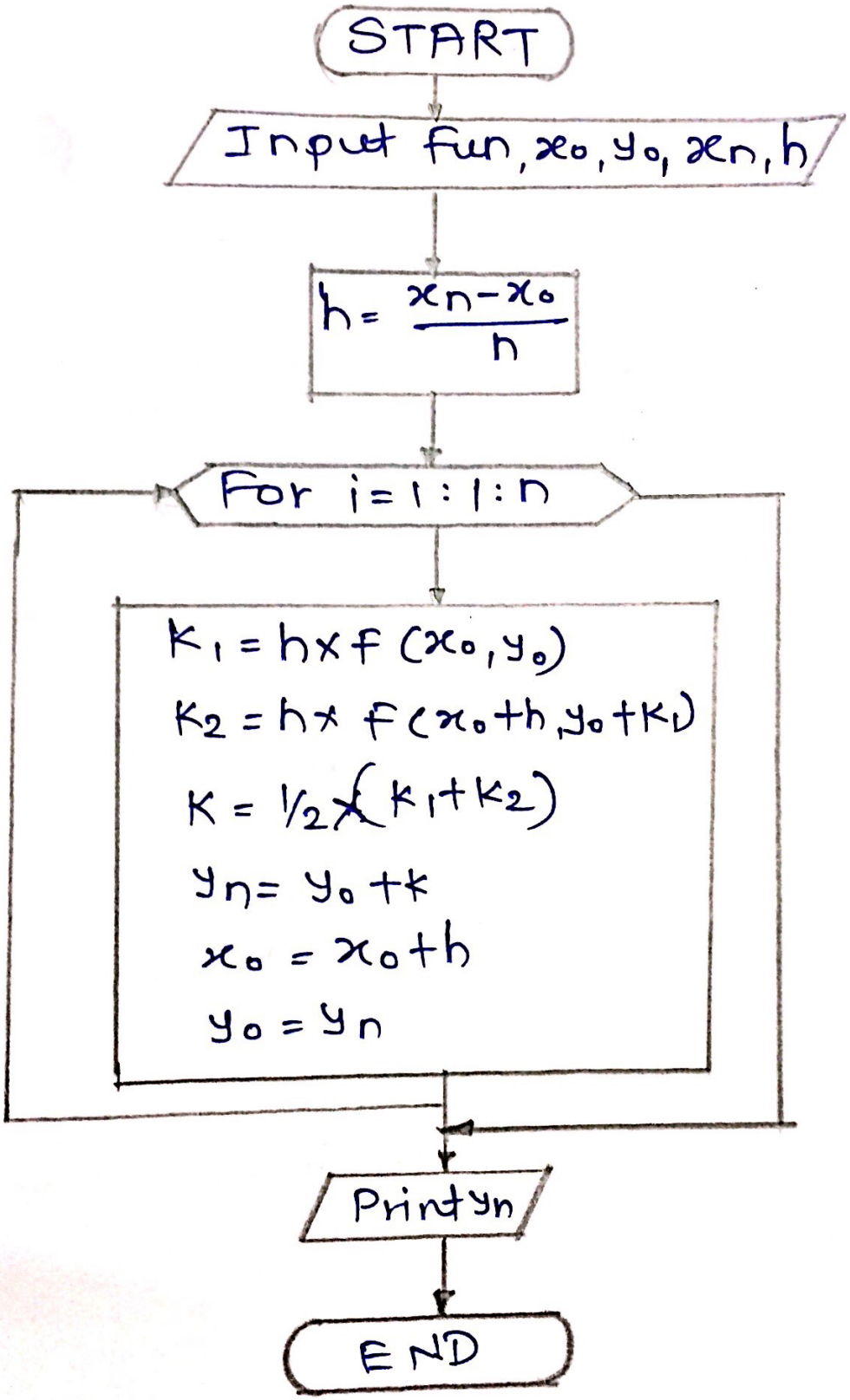


• 18 Inverse Interpolation

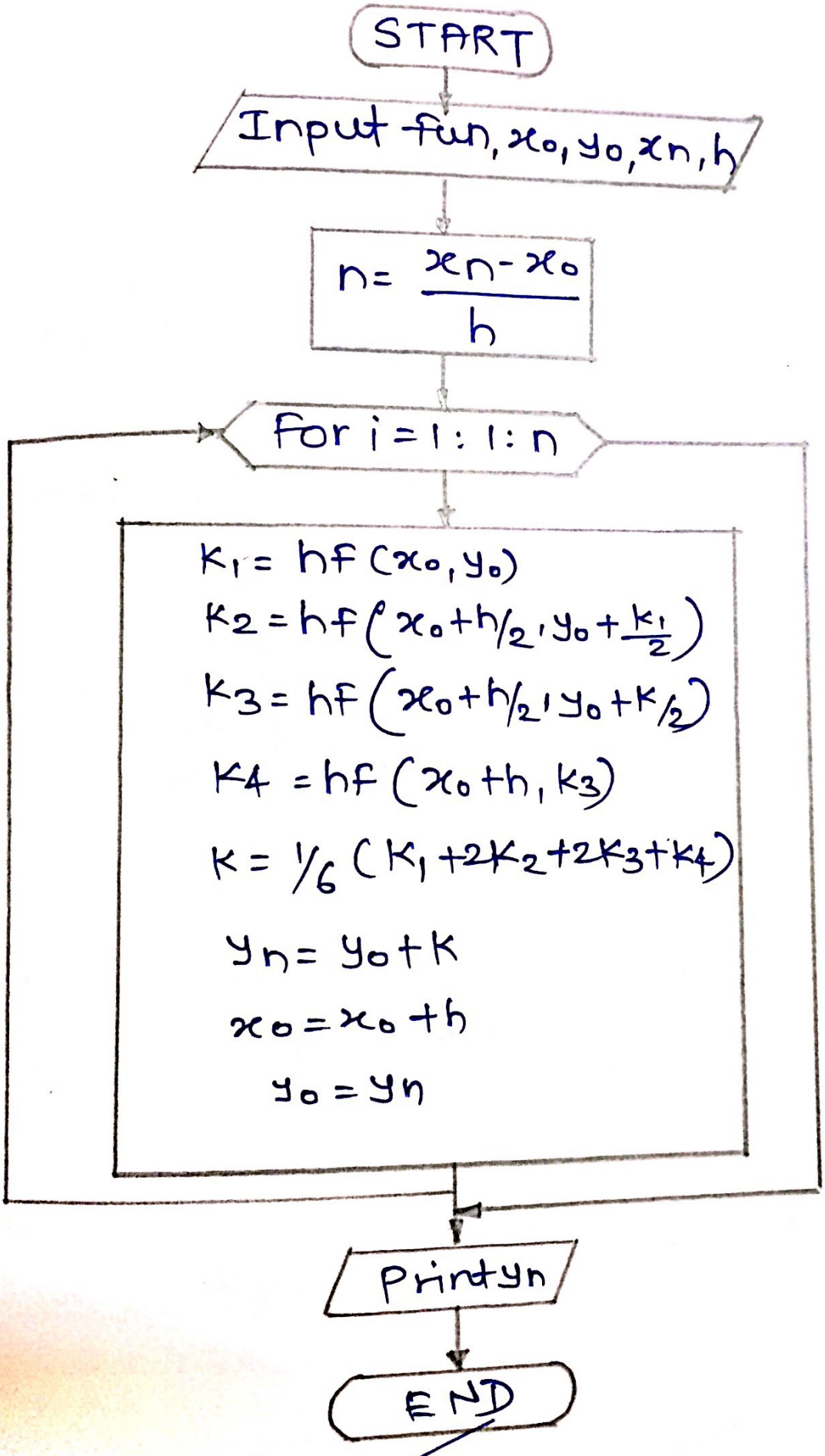
*22 * Parabolic Explicit Solution*



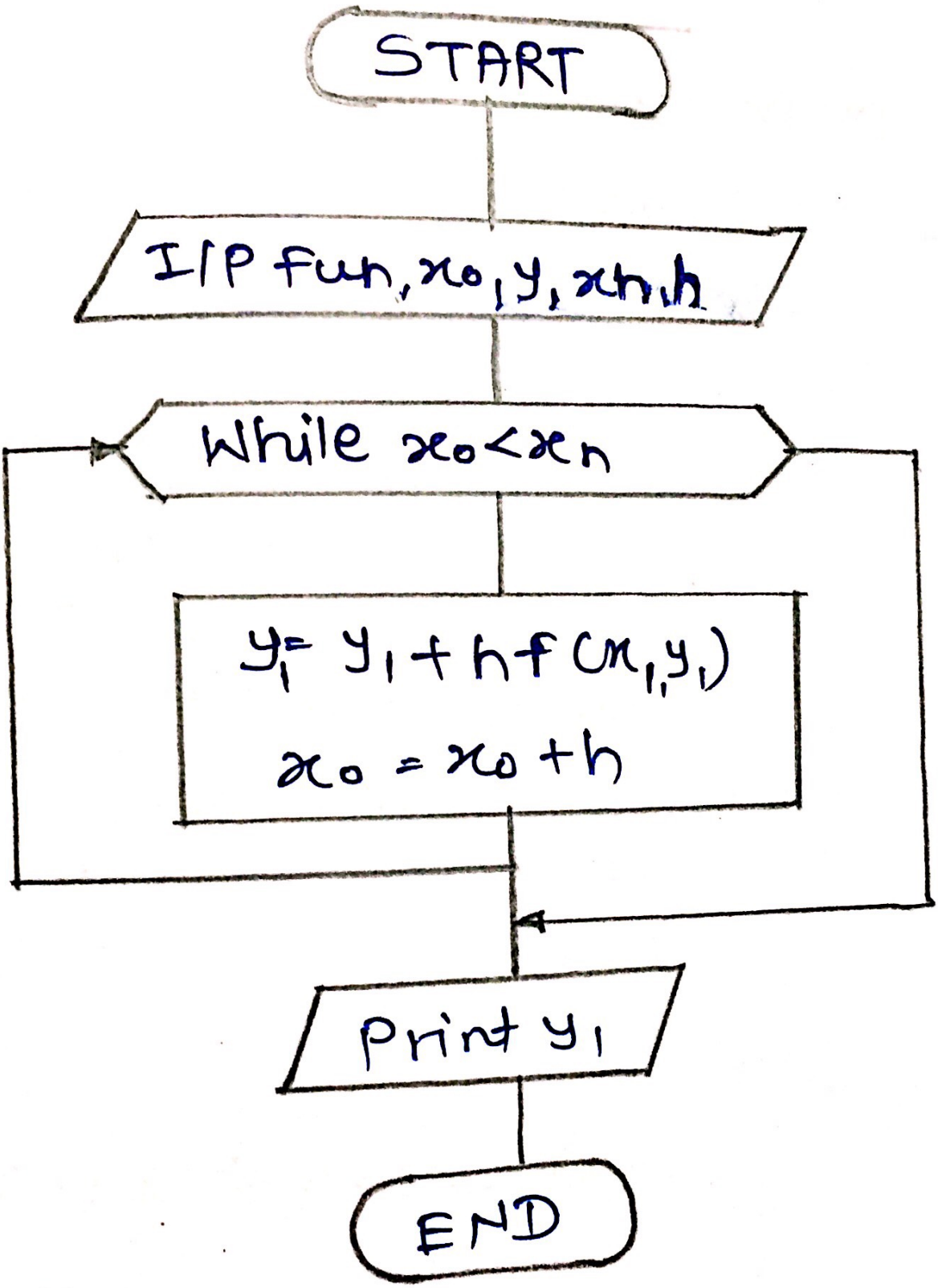
*21 *Simultaneous Eqn by * *Runge kutta - 2nd order*



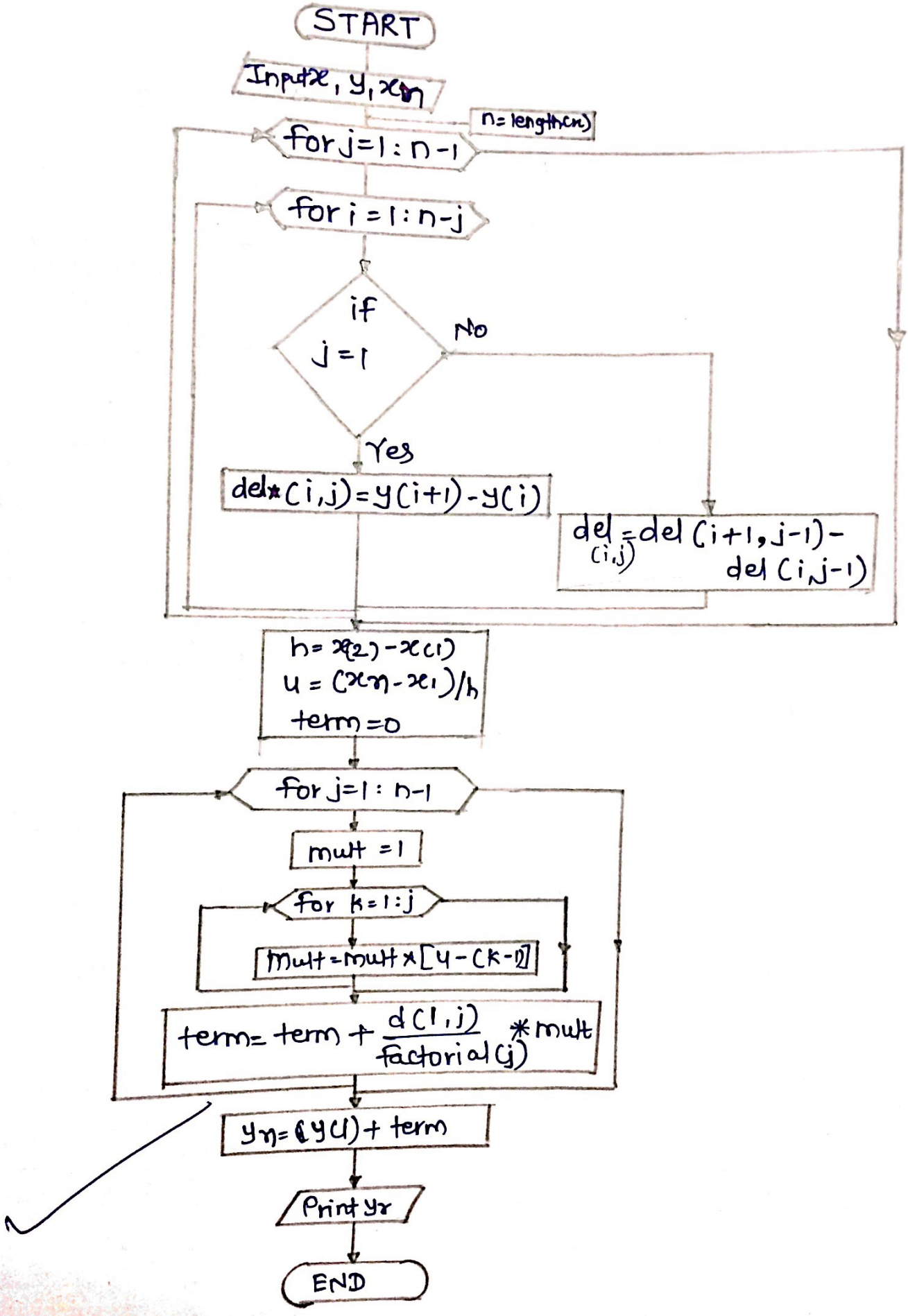
20 Runge Kutta - 4th order *



*19 *Euler Method *(Iterative)*



*17 * Newton's Forward Difference * Interpolation



15 Curve Fit for Quadratic Equation*

START

Input x, y

n = length(x), Sum x = 0, Sum xx = 0, Sum y = 0, Sum xy = 0
Sum xxn = 0, Sum xxxx = 0, Sum xxy = 0

For i = 1:1:n

Sumx = Sumx + x(i)
Sum y = Sumy + y(i)
Sum xy = Sumxy + x(i) x y(i)
Sum xx = Sum xn + x(i) x x(i)
Sumxxx = Sumxxn + x(i) x x(i) x x(i)
Sum xxxx = Sumxxxx + x(i) x x(i) x x(i) x x(i)
Sum xxy = Sum xxy + x(i) x x(i) x y(i)

Define Matrix

$$P = \begin{bmatrix} Sum\,xxx & Sum\,xxx & Sum\,xn \\ Sum\,xn & Sum\,xx & Sum\,x \\ Sum\,xn & Sum\,x & n \end{bmatrix}, \quad Q = \begin{bmatrix} Sum\,xxy \\ Sum\,xy \\ sum\,y \end{bmatrix}$$

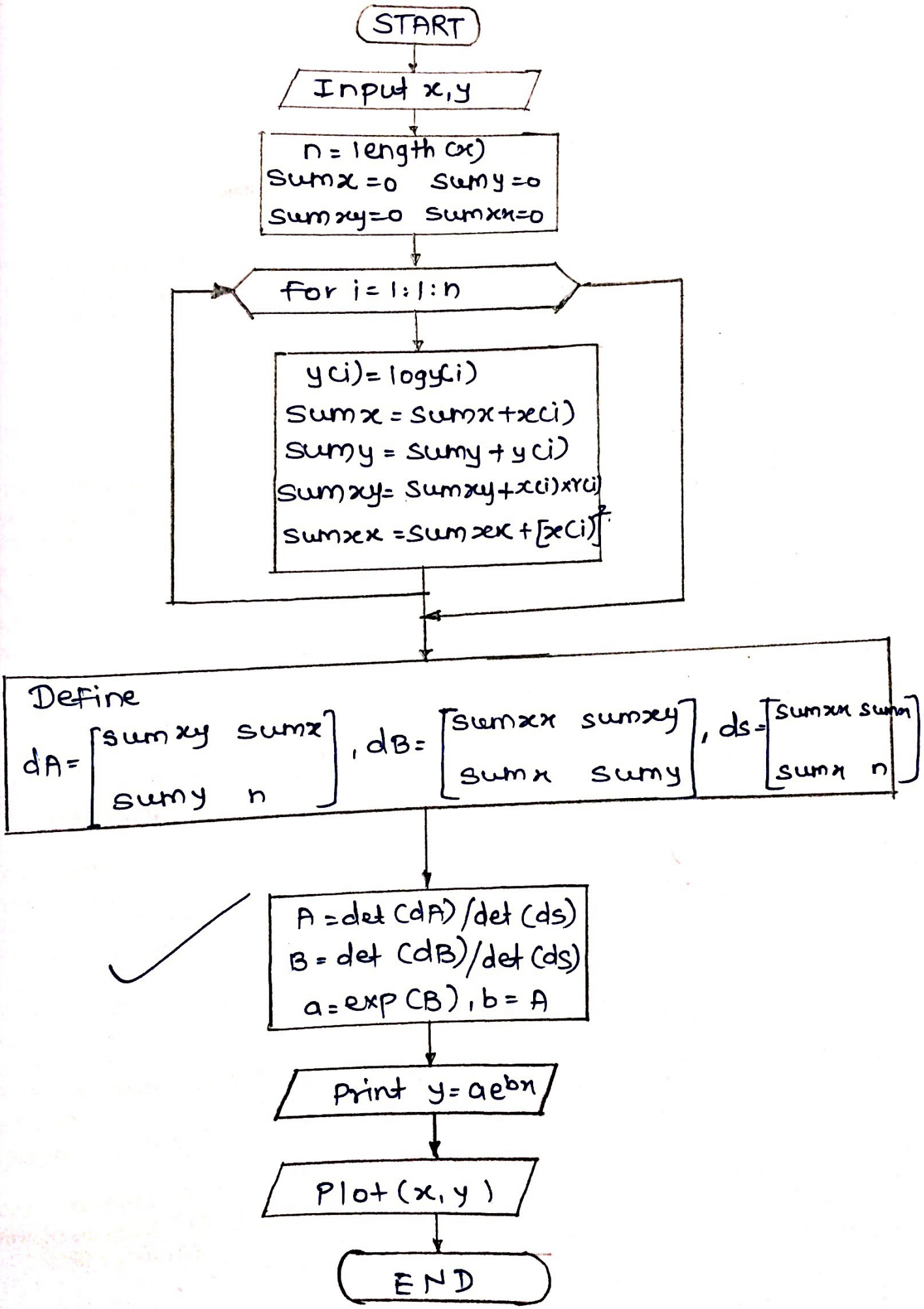
S = P/Q
A = S(1), a = A
B = S(2), b = B
C = S(3), c = C

Print $y = ax^2 + bx + c$

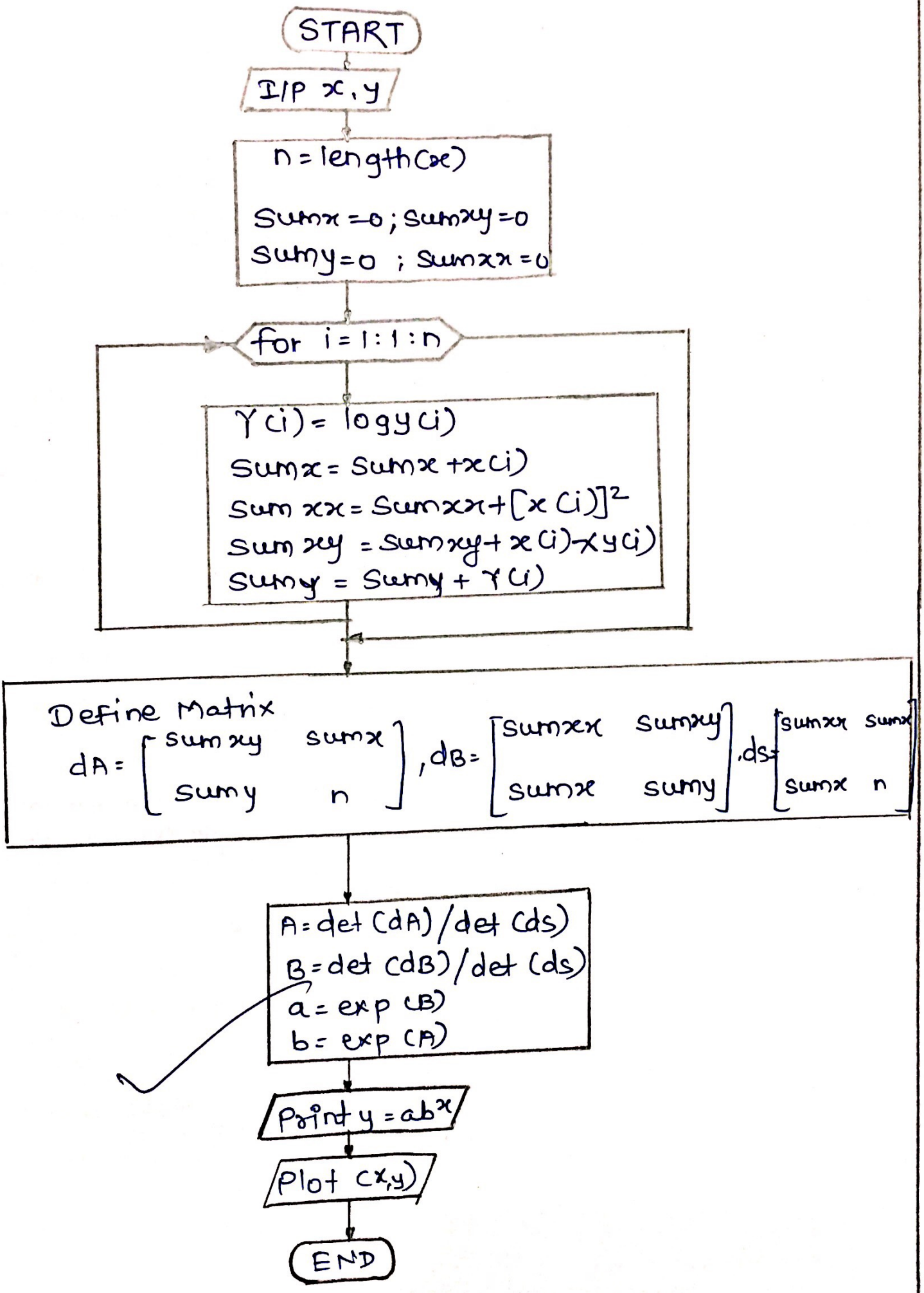
Plot x, y

END

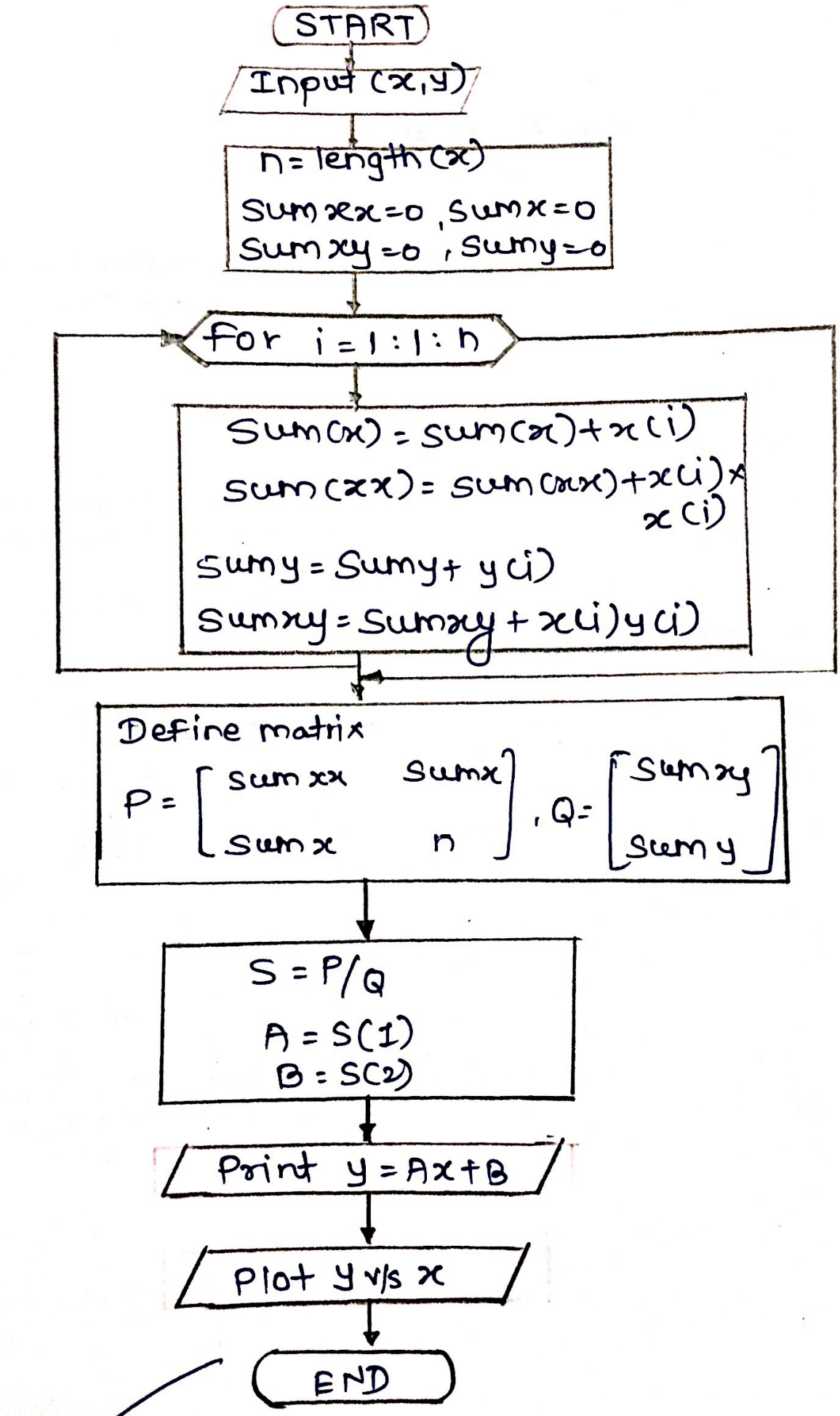
*14 * Curve Fit for Exponential Function *



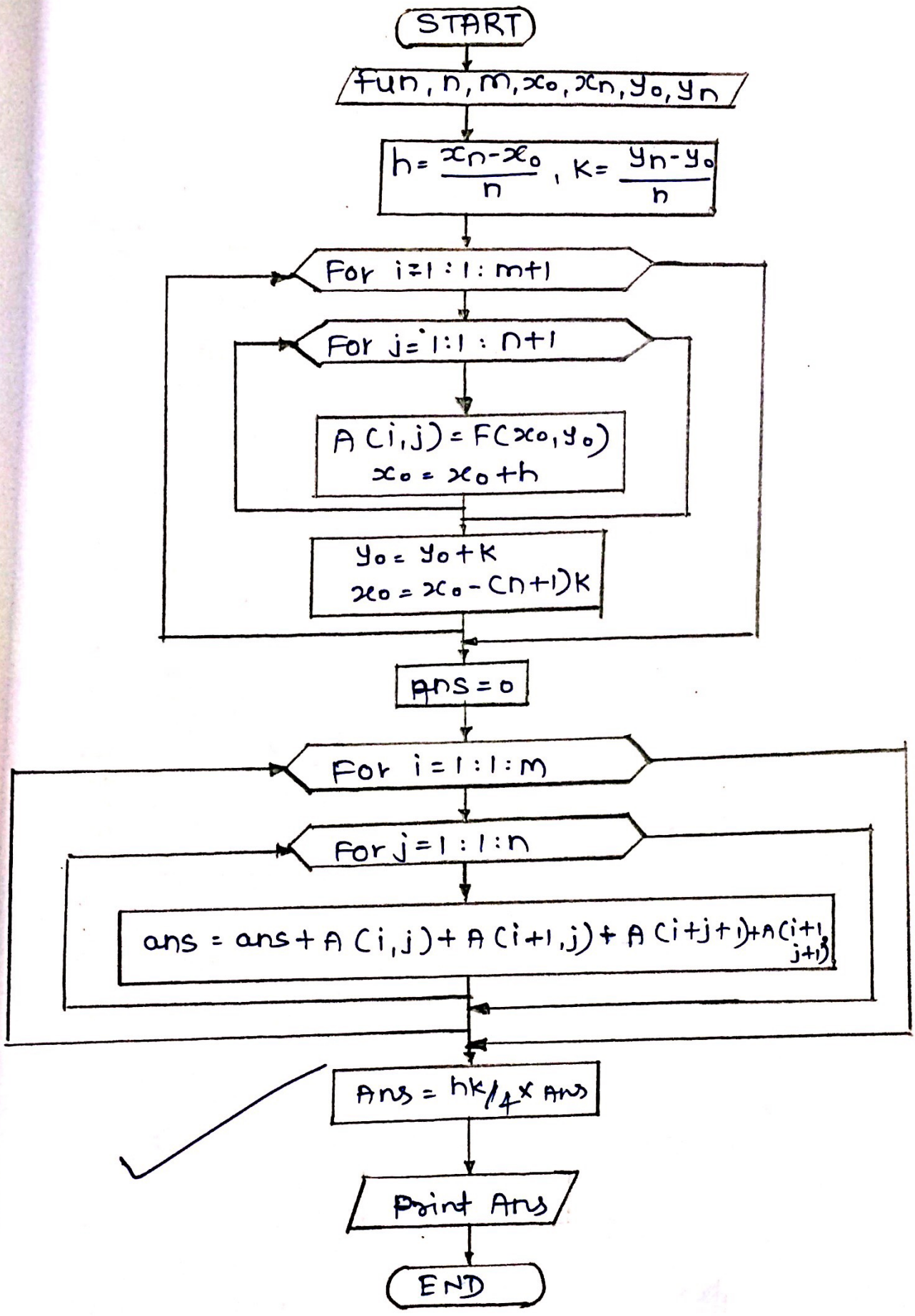
*13 *Curve Fit for Power Equation*



12 Straight Line Curve Fitting*

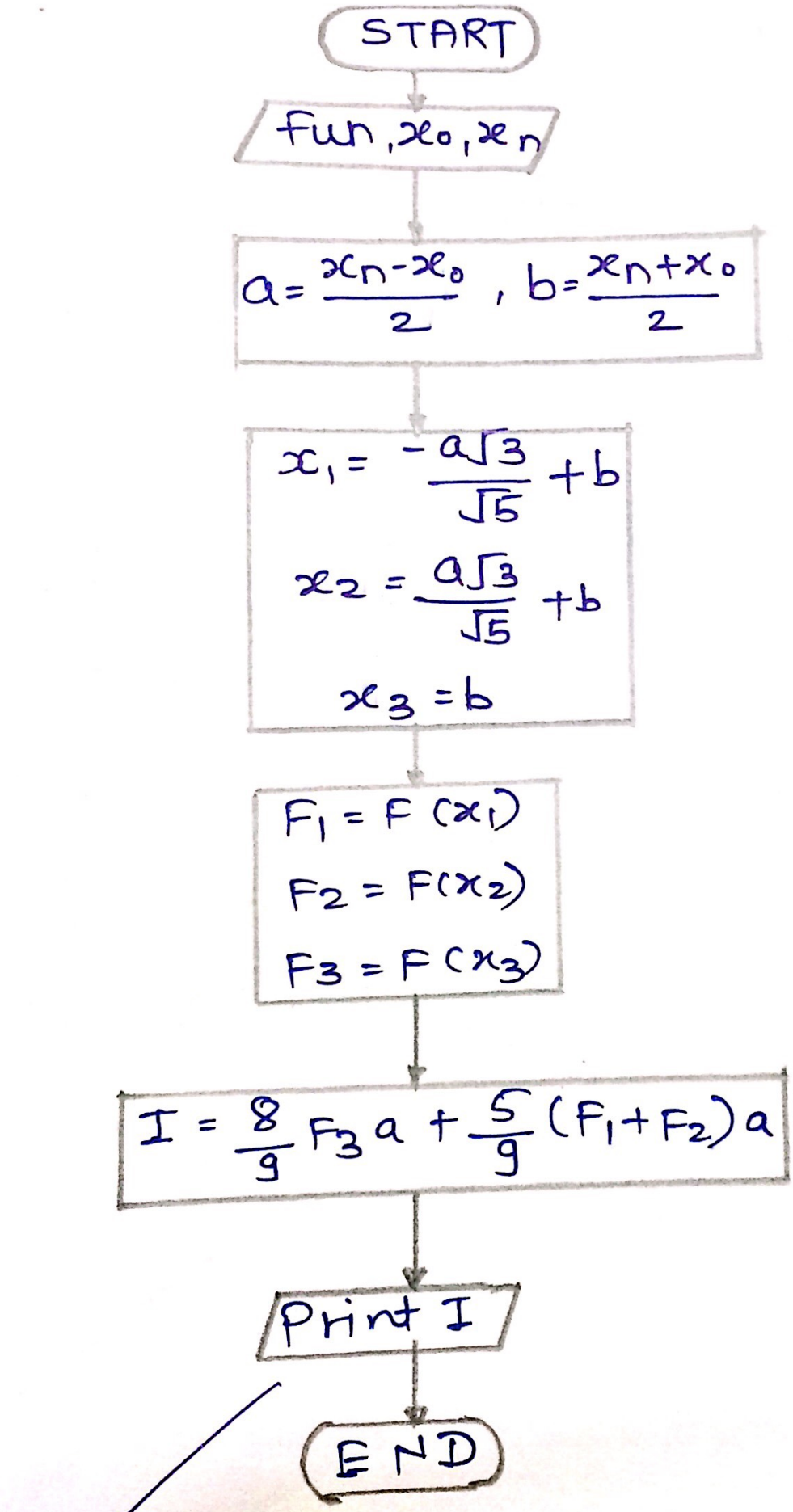


*11 *Double Integration By Trapezoidal * Rule



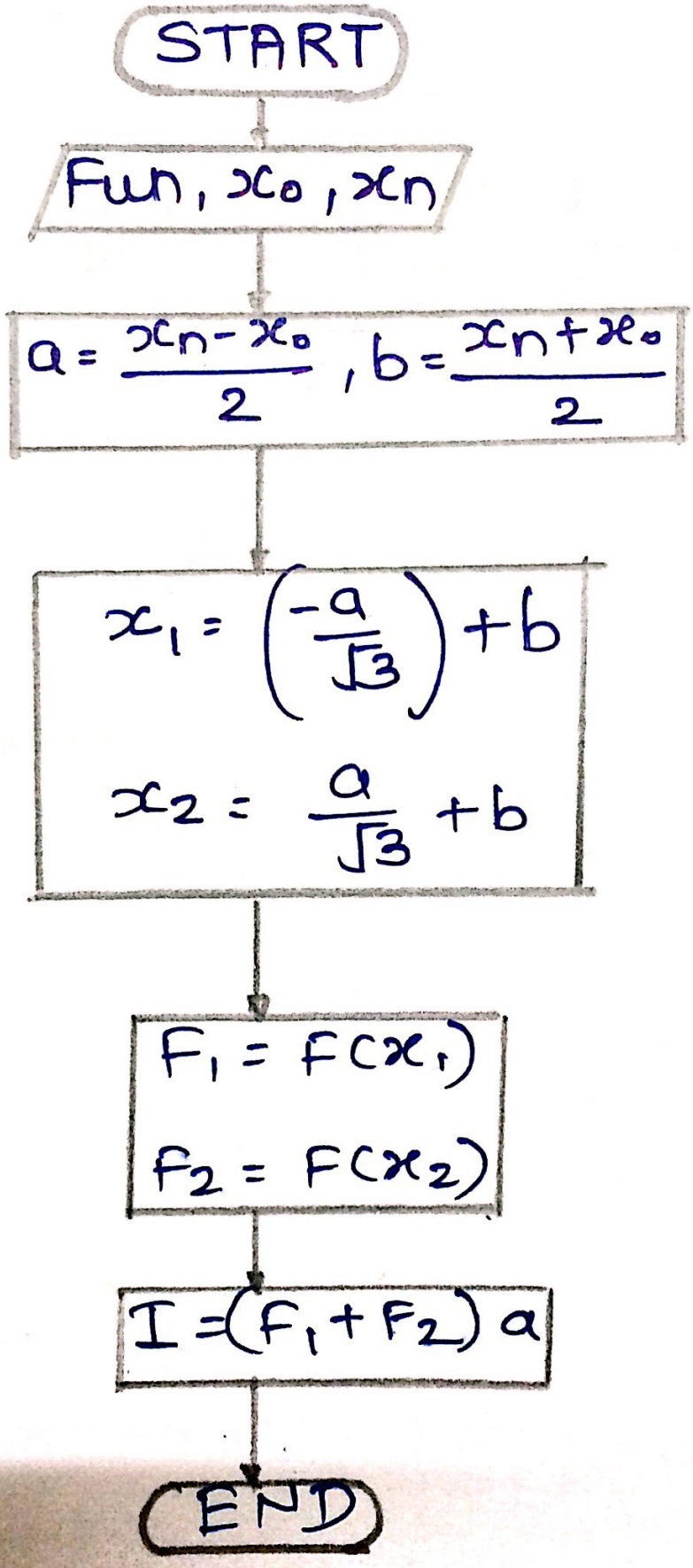
10 Gauss Quadrature Method*.

[II] Gauss 3-point Method *



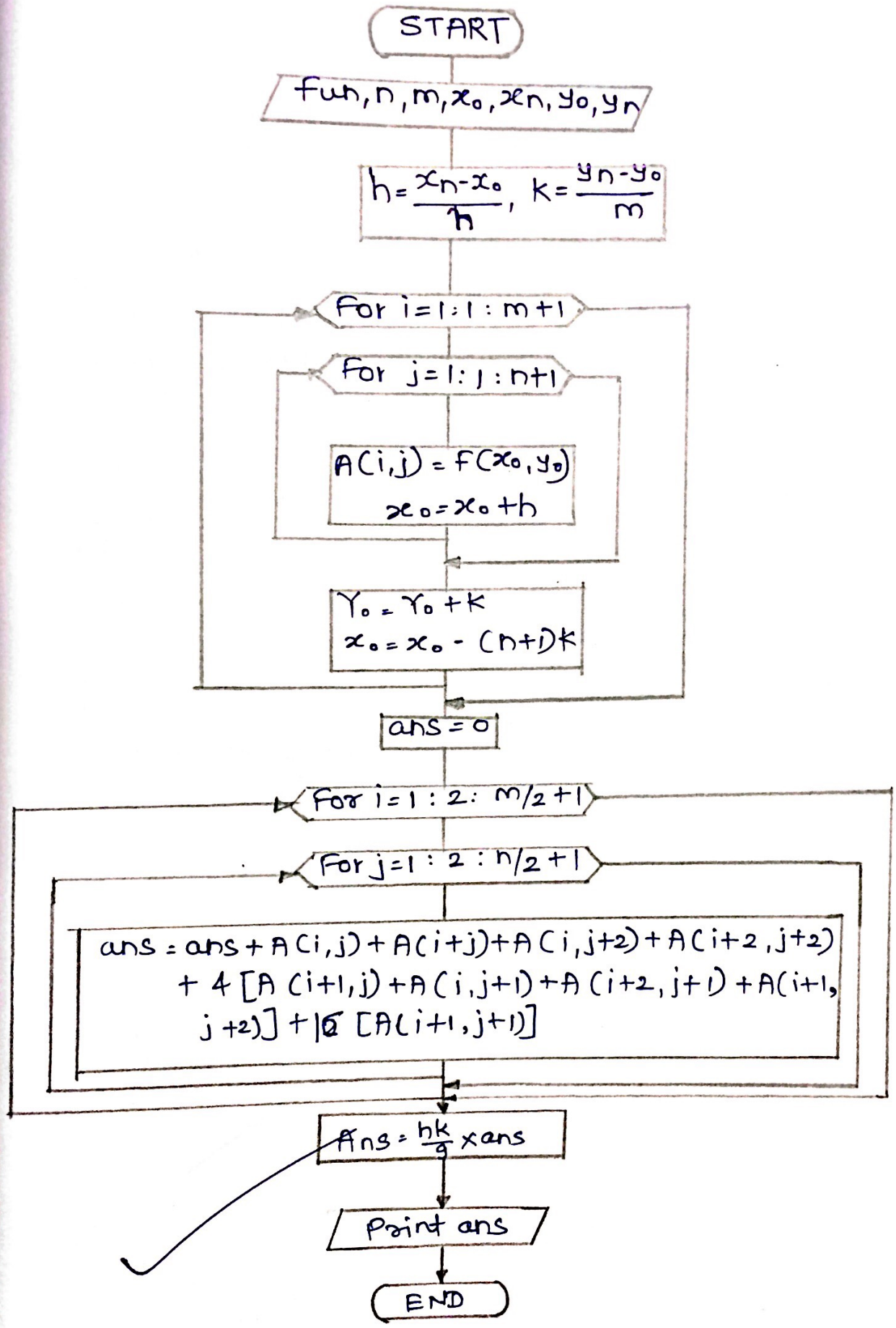
1o Gauss Quadrature Method *

* [I] * Gauss 2-point Method *



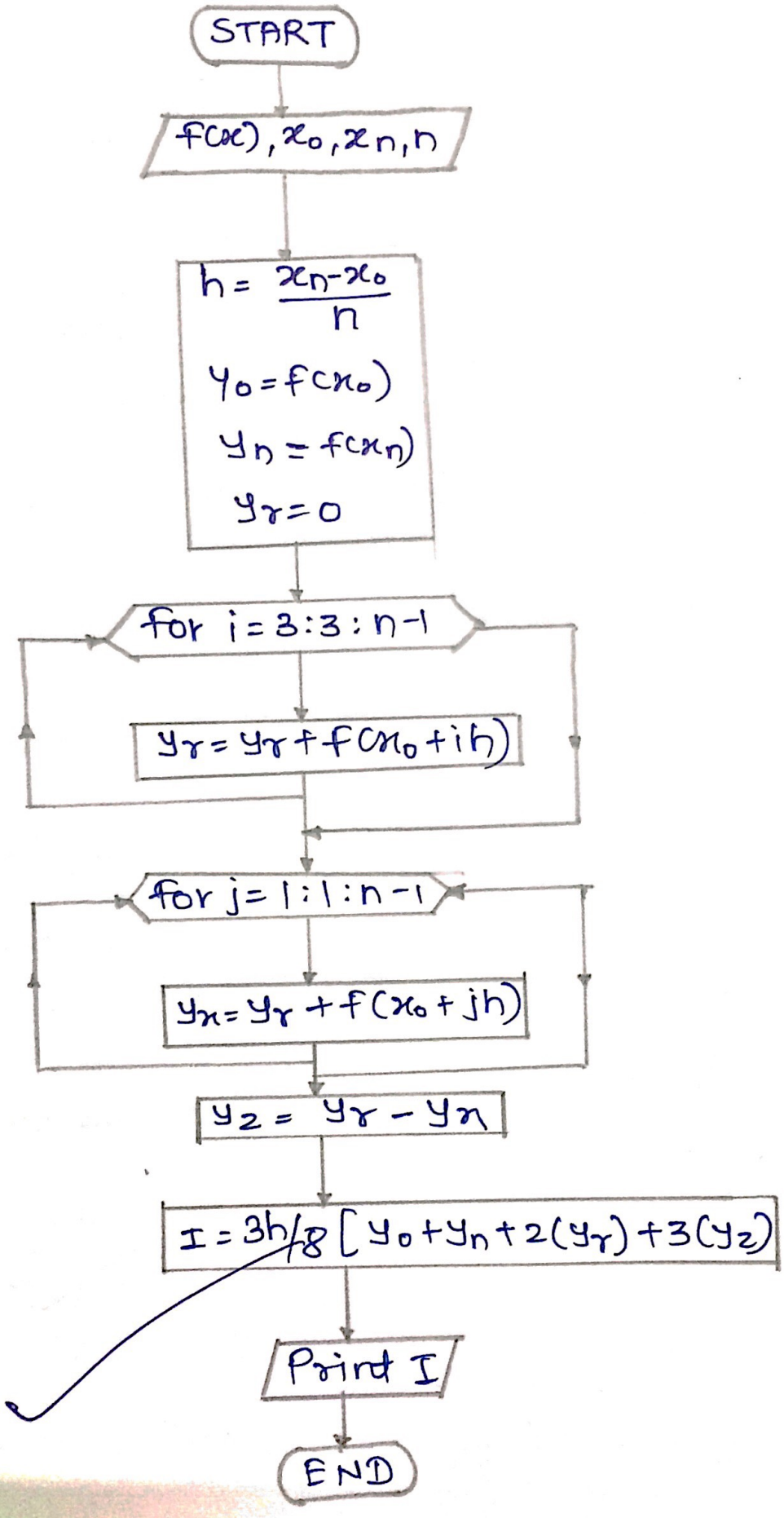
9. Simpson's Rule

III Double Integration for Simpson Rule*



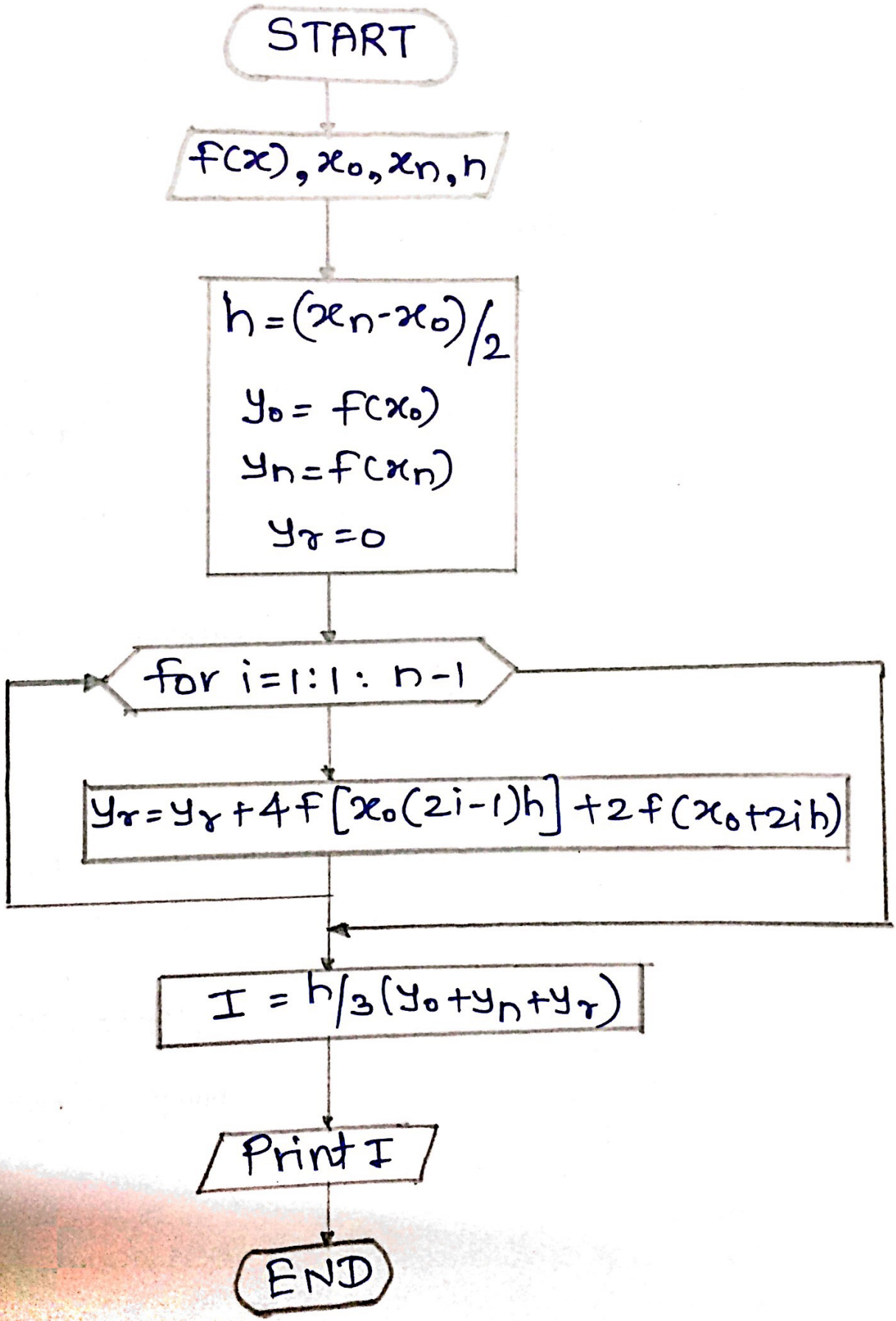
*9 *Simpson's Rule*

*[II] *Simpson's 3/8th Rule*

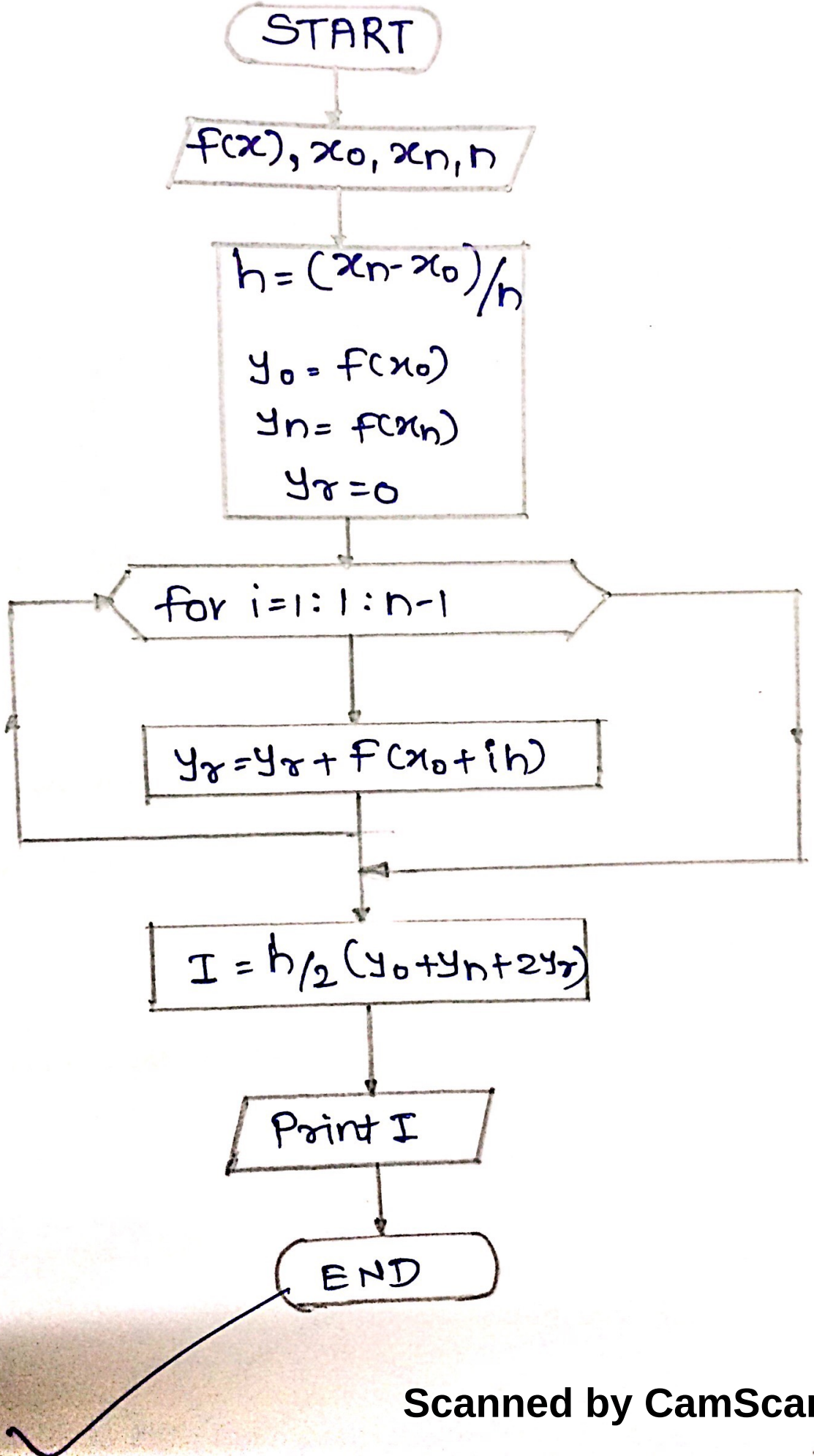


9 Simpson's Rule*

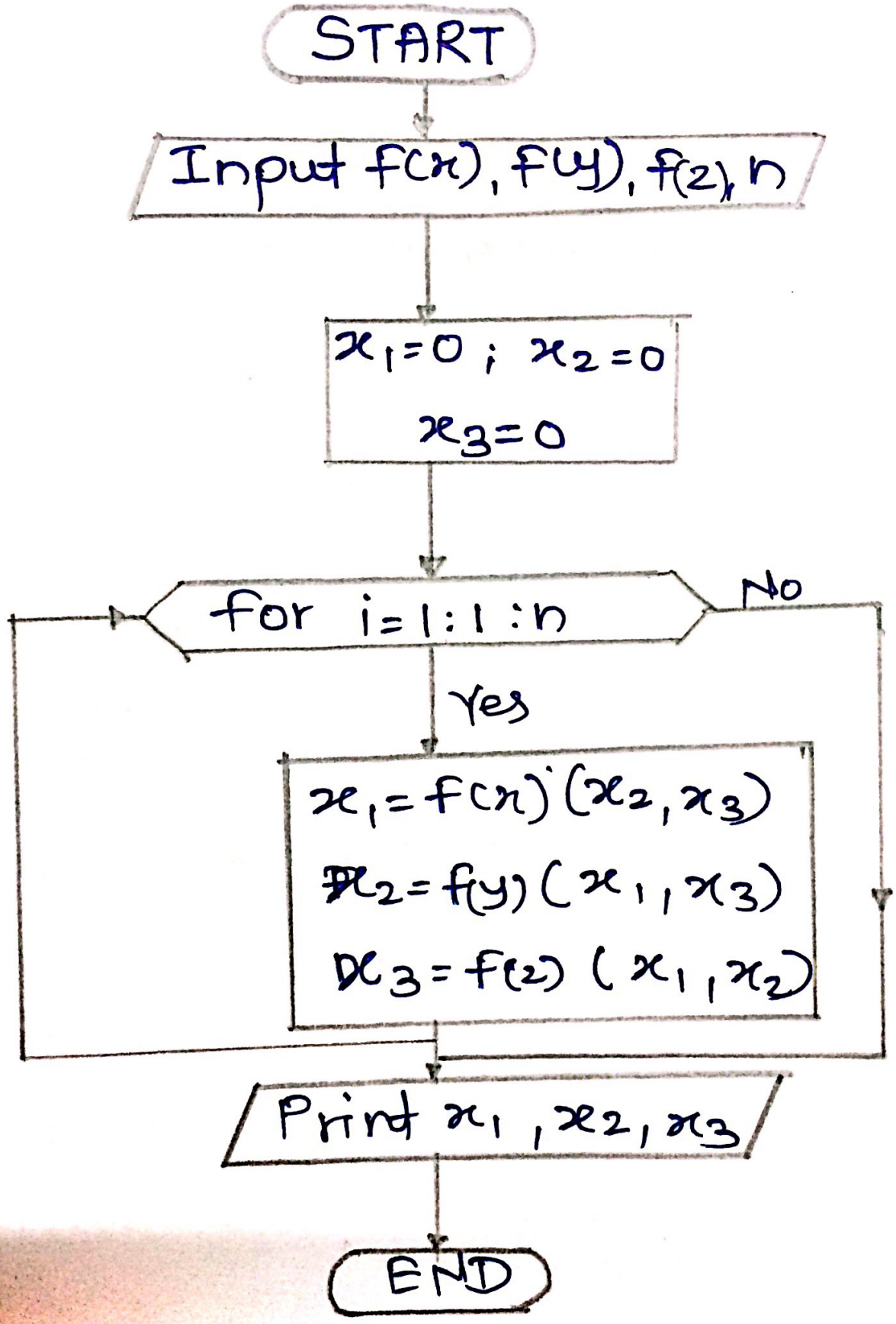
[I] Simpson's 1/3rd Rule*



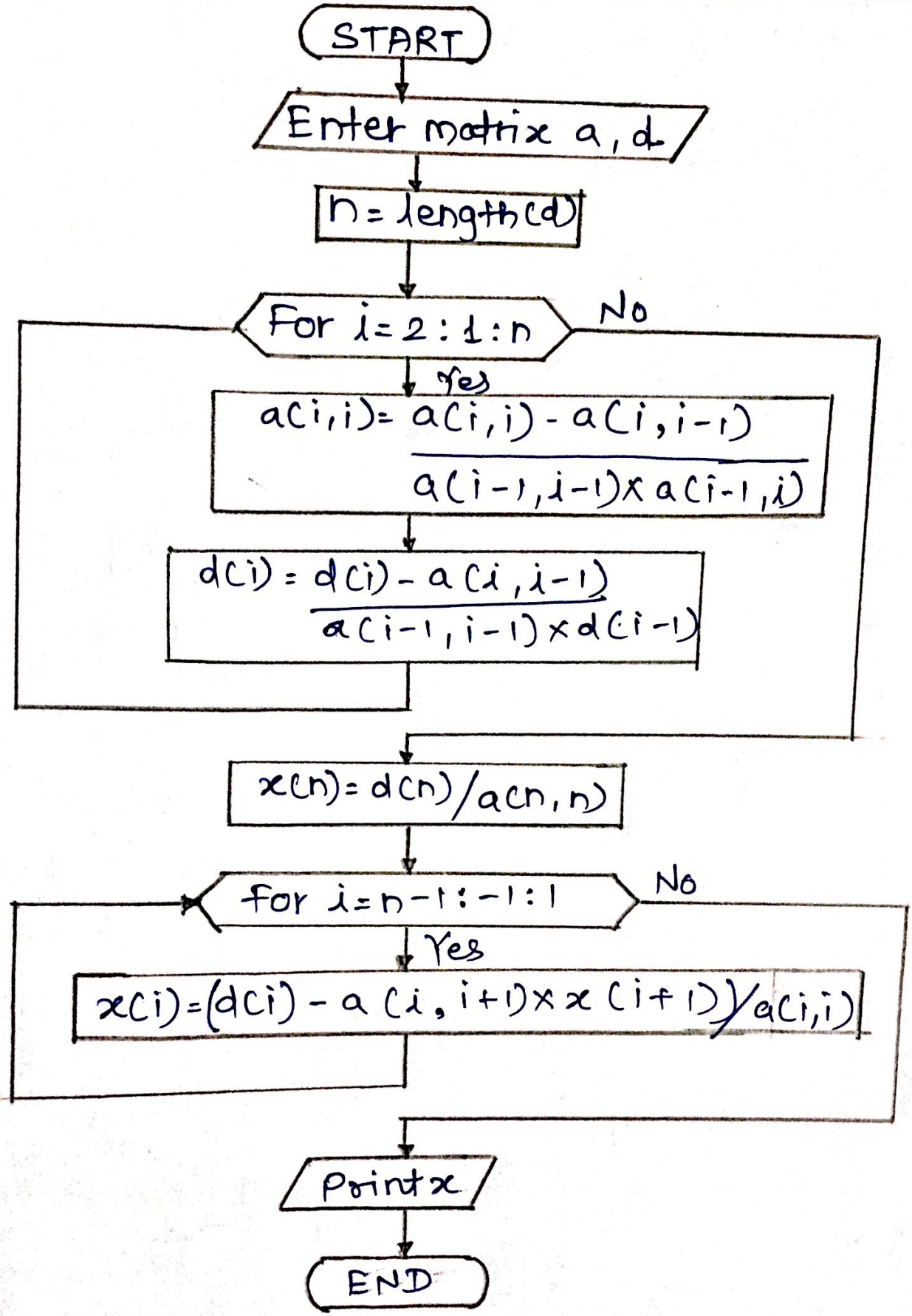
8 Trapezoidal Rule*



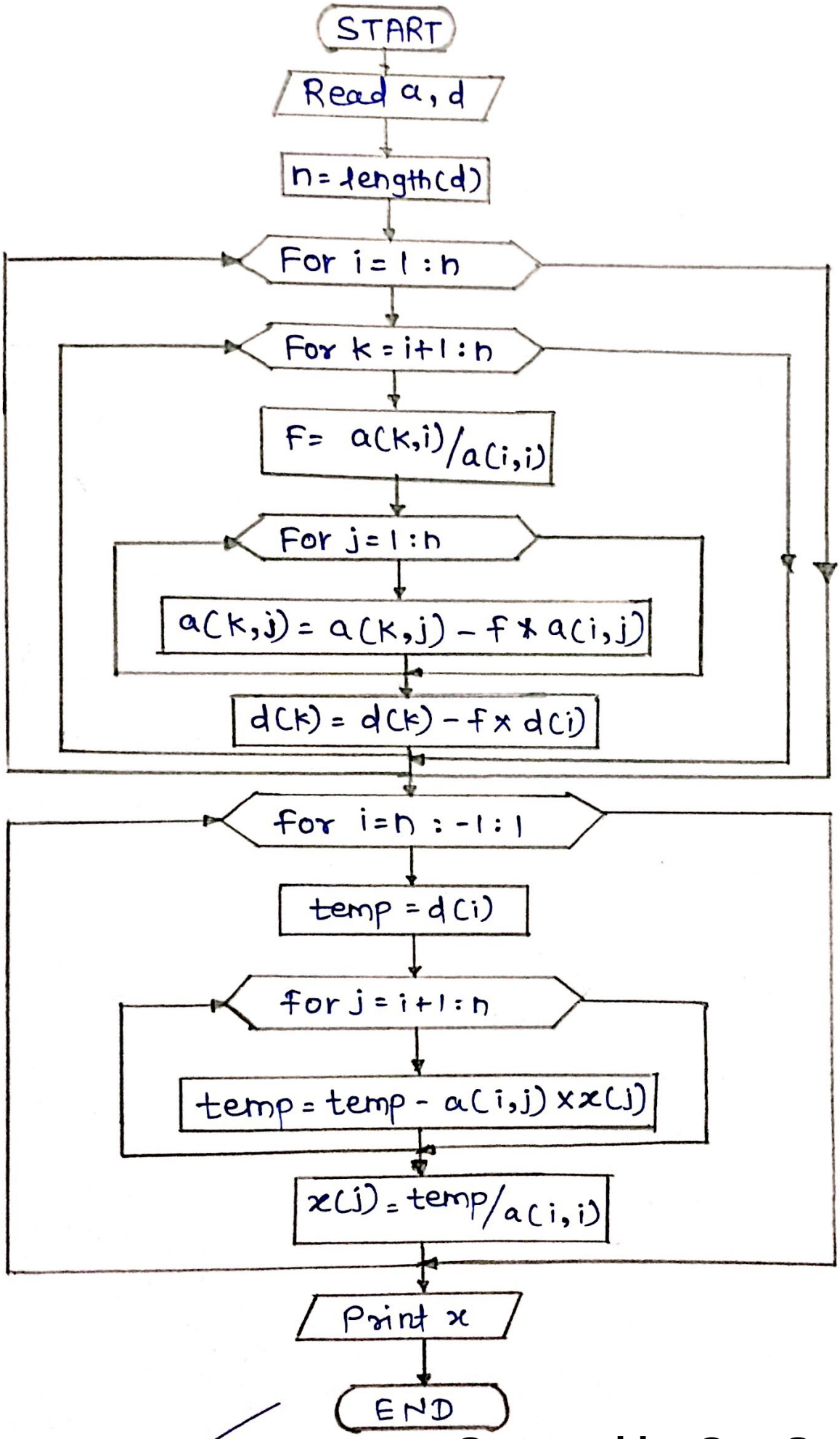
7 Gauss Seidal Method*



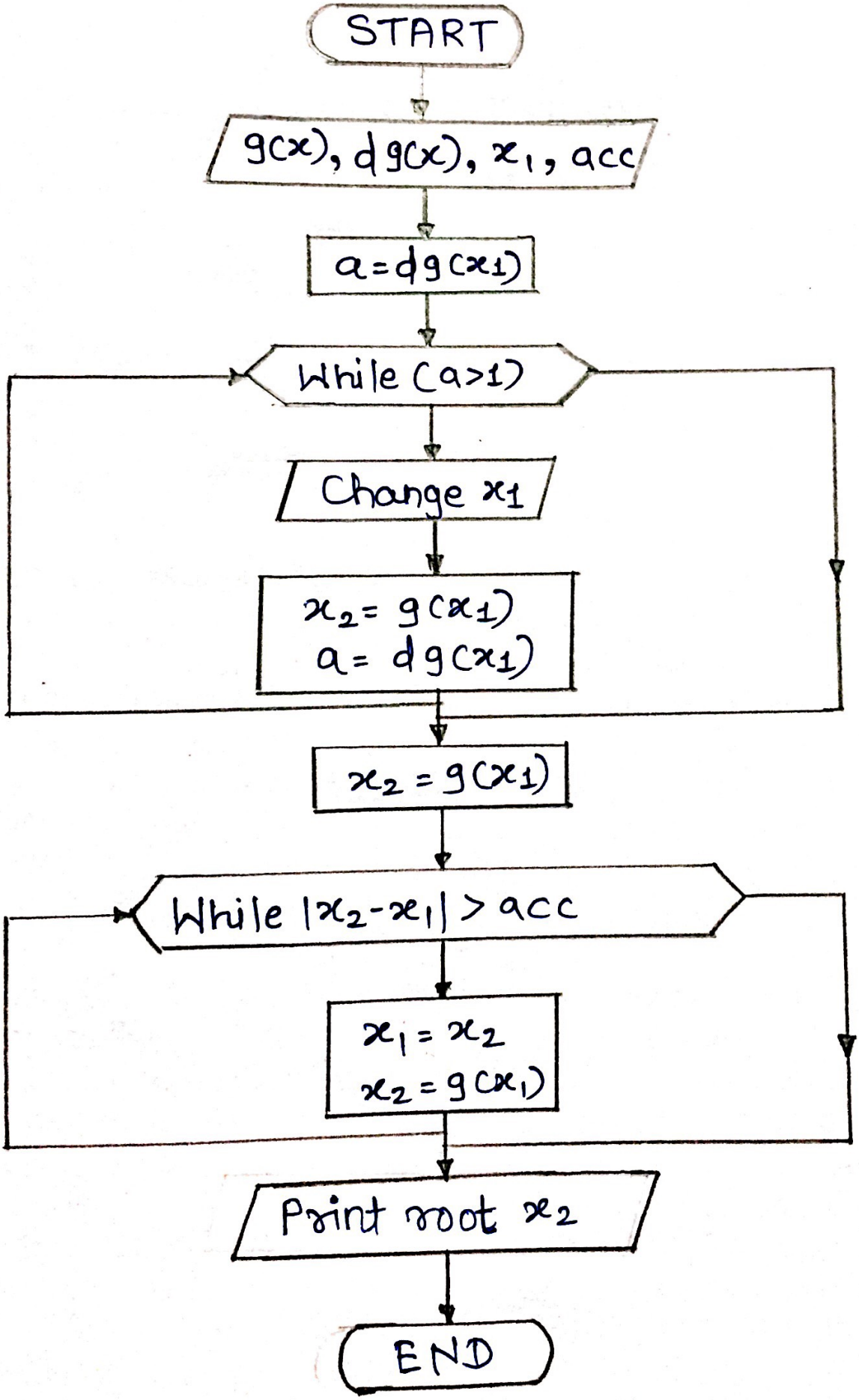
6. Thomas Algorithm Method *



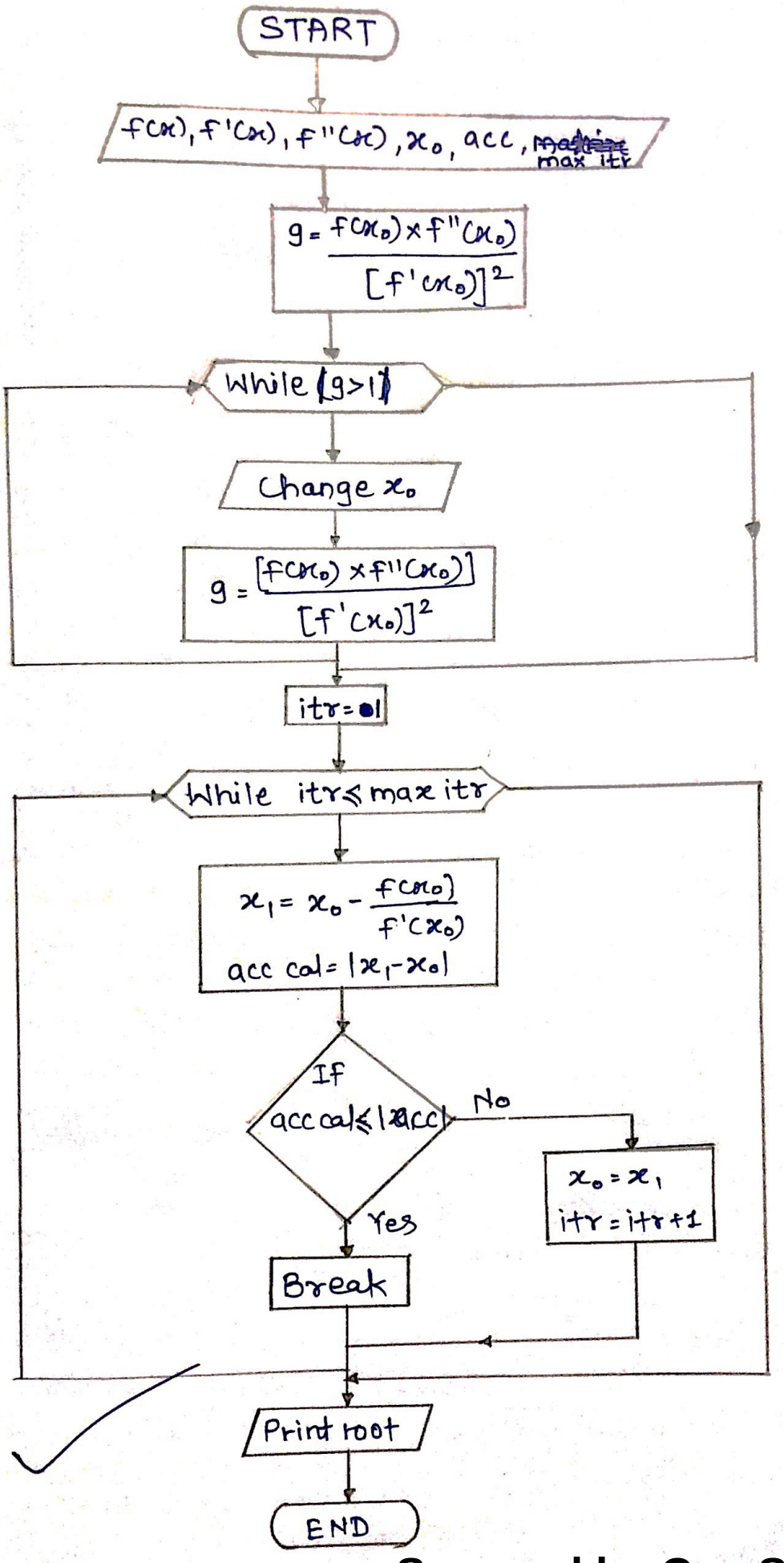
5. Gauss Elimination Method



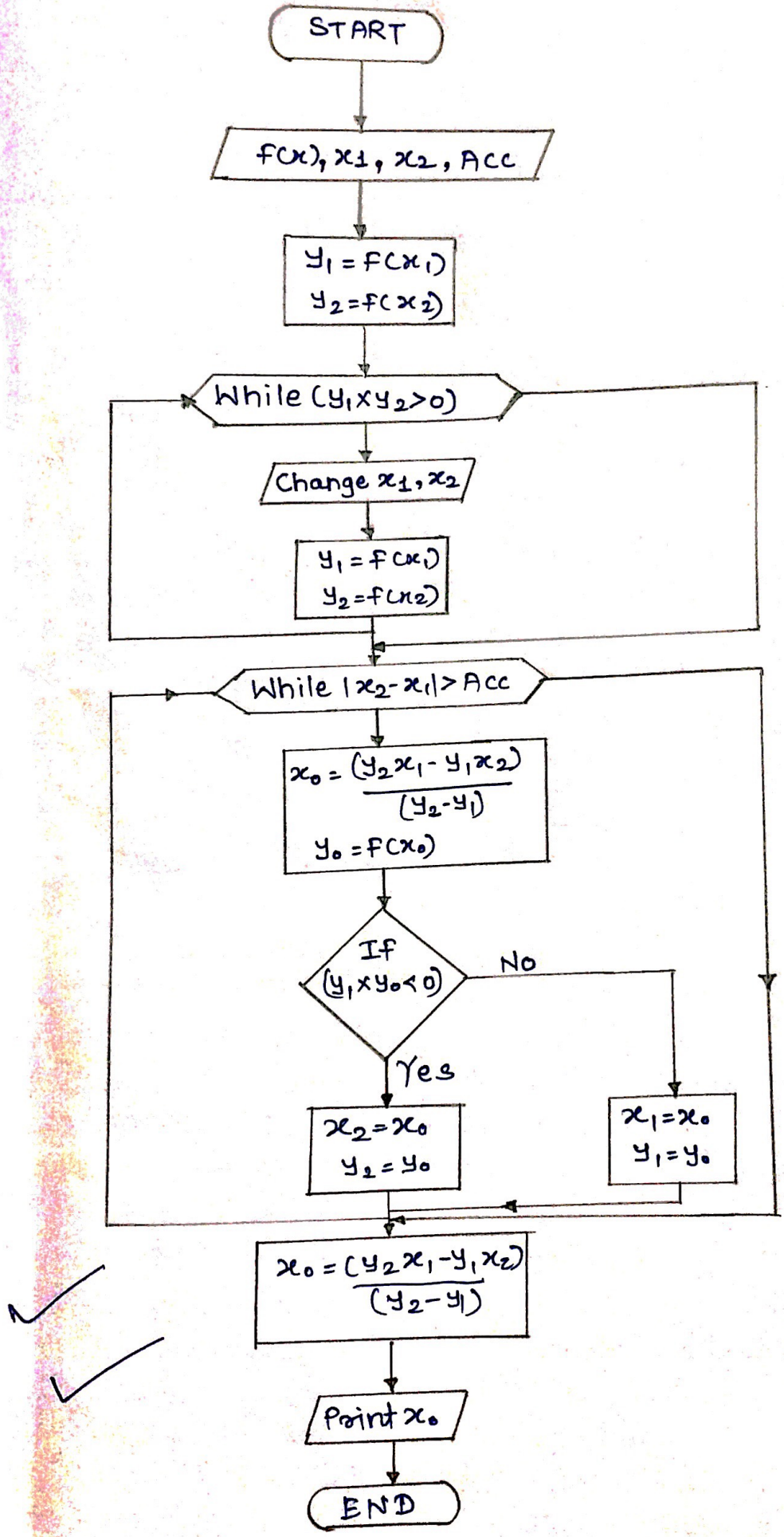
4. Successive Approximation Method



3. Newton Raphson Method



* 2. Regular False Position Method *



* 1. Bisection Method *