COMPUTER-BASED METHOD FOR 1st ORDER ORDINARY D. EQN.

A 1st order ODE provides a simple recipe for writing a computer program:

$$\frac{dv}{dt} = -g + \alpha v^2$$

$$\frac{v(t+\Delta t) - v(t)}{\Delta t} = -g + \alpha \left[v(t)\right]^2$$

↑ assuming Δt is "small enough"

$$\Rightarrow v(t+\Delta t) = v(t) + \left[-g + \alpha \left[v(t)\right]^2\right]\Delta t \quad \text{—— ①}$$

Eq ① is a recursion relation.

The next velocity is calculated from preceeding velocity