Euler method

Initialise constants and initial conditions  
Discretise time and space

For length of time array

Multiply current x by growth constant  
Multiply result by step size and add to current x value to find next x

For length of time array

Calculate analytical solution

Plot graph of both numerical and analytical solutions

Midpoint Method

Initialise constants and initial conditions  
Discretise time and space

For length of time array

Multiply current x by growth constant  
Multiply result by half step size and add to current x value to find midpoint

Multiply midpoint by growth constant  
Multiply result by step size and add to current x value to find next x

For length of time array

Calculate analytical solution

Plot graph of both numerical and analytical solutions

RK4

Initialise constants and initial conditions  
Discretise time and space

For length of time array

Calculate the 4 rk values

Add the 4 values in proportion to current x to find the next x value

For length of time array

Calculate analytical solution

Plot graph of both numerical and analytical solutions

2nd Order system

Initialise constants and initial conditions  
Discretise time and space

For length of time array

Calculate next velocity from current position and system constants

Calculate next position from current velocity

For length of time array

Calculate analytical solution

Plot graph of both numerical and analytical solutions