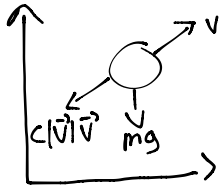


1. Numerical Example

- see examples on site



- 1. Setting up the problem ^{define what's}
- 2. Differential Equation ^{initial state array - initial parameters} (z, p) \rightarrow adding t makes it more general (t, z, p) "List of numbers"

$z = 4$ numbers

$r = z(1:2)$ $v = z(3:4)$

Column vectors, first two spots are position, second two are velocities

General Form: $\dot{z} = f(t, z)$

$z_{dot} = [\dot{r}; \dot{v}]$ rates of change of the 4 numbers

$z_{array}(i, j)'$
| passes to 3, which passes to 2

z_{dot}'

3. Euler's method

pass in the name of the differential equations, time, initial z , parameters passed in from ①. \odot canonODEs

$n = \text{length}(tarray); m = \text{length}(z_0);$

$zarray = \text{zeros}(n, m);$

$zarray(1, :) = z_0;$