```
(*omega := 10;*)
(*m := 4;*)
(*epsilon := 0.5;*)
f[x_] := -\sin[omega * x] - m * x
oldf[x_] := -4 * x
 v[x_{-}] := Integrate[-f[t]*(-t), \{t, 0, x\}] + Integrate[-f[t]*(-x), \{t, x, 1\}];
Simplify[v[x]]
m omega^2 x \left(-3 + x^2\right) + 6 omega x Cos\left[\text{omega}\right] - 6 Sin\left[\text{omega}\right]
                                6 omega<sup>2</sup>
u[x_{-}] := v[x] + epsilon * x + 1
Simplify[u[x]]
1 + \text{epsilon } x - \frac{\text{m } x}{2} + \frac{\text{m } x^3}{6} + \frac{x \text{ Cos[omega]}}{\text{omega}} - \frac{\text{Sin[omega } x]}{\text{omega}^2}
Simplify[D[u[x], x]]
v[0]//N
D[v[x], x] /. x \rightarrow 1 // N
Simplify [D[D[v[x], x], x] + f[x]]
-1. m - 1. Sin [omega] + \frac{0.5 (2. \text{ m omega} + 2. \text{ omega Sin} [\text{omega}])}{}
u[0]// N
D[u[x], x] /.x \rightarrow 1//N
Simplify [D[D[u[x], x], x] + f[x]]
epsilon - 1. m - 1. \sin[\text{omega}] + \frac{0.5 (2. \text{ m omega} + 2. \text{omega} \sin[\text{omega}])}{\cos(2. \text{ m omega})}
```