Programm zur Modellierung des Besenkippens

In[1]:=
```
KipMod[ps_, dps_, k_, l_] :=
 Module[{t, z = 0, p0 = ps, dp0 = dps, p = 0 , dp = 0, ddp = 0, FktList = {{0, ps}}},
  t = Sqrt[2 * l / (3 * 9.81)];
  While[p0 < π / 2, ddp = Sin[p0] / t^2;
   dp = dp0 + k * ddp;
   p = p0 + k * dp;
   z = z + k;
   AppendTo[FktList, {z, p}];
   p0 = p;
   dp0 = dp
  ];
  {z, FktList}]
```

In[2]:=
```
Werte[s_, freq_, ende_, d_, l_] := Module[{p0 = 0, FktList = {}},
  For[i = s, i ≤ freq, p0 = ende * i / freq;
   AppendTo[FktList, {p0, KipMod[p0, 0, d, l][[1]]}];
   i++]; FktList]
```

In[3]:=
```
Werte[0.05, 40, 1.5, 0.2, 1.45]
```

Out[3]=
```
{{0.001875, 2.4}, {0.039375, 1.4}, {0.076875, 1.2}, {0.114375, 1.}, {0.151875, 1.},
 {0.189375, 1.}, {0.226875, 0.8}, {0.264375, 0.8}, {0.301875, 0.8}, {0.339375, 0.8},
 {0.376875, 0.8}, {0.414375, 0.6}, {0.451875, 0.6}, {0.489375, 0.6}, {0.526875, 0.6},
 {0.564375, 0.6}, {0.601875, 0.6}, {0.639375, 0.6}, {0.676875, 0.6}, {0.714375, 0.4},
 {0.751875, 0.4}, {0.789375, 0.4}, {0.826875, 0.4}, {0.864375, 0.4}, {0.901875, 0.4},
 {0.939375, 0.4}, {0.976875, 0.4}, {1.01438, 0.4}, {1.05188, 0.4}, {1.08938, 0.4},
 {1.12688, 0.4}, {1.16438, 0.4}, {1.20188, 0.2}, {1.23938, 0.2}, {1.27688, 0.2},
 {1.31438, 0.2}, {1.35188, 0.2}, {1.38938, 0.2}, {1.42688, 0.2}, {1.46438, 0.2}}
```

In[4]:=
```
Werte[0.05, 40, 1.5, 0.0001, 1.45]
```

Out[•]=
```
{{0.001875, 2.3472}, {0.039375, 1.3915}, {0.076875, 1.1817}, {0.114375, 1.0571},
 {0.151875, 0.9683}, {0.189375, 0.8992}, {0.226875, 0.8427}, {0.264375, 0.7948},
 {0.301875, 0.7532}, {0.339375, 0.7164}, {0.376875, 0.6835}, {0.414375, 0.6536},
 {0.451875, 0.6262}, {0.489375, 0.6009}, {0.526875, 0.5773}, {0.564375, 0.5552},
 {0.601875, 0.5344}, {0.639375, 0.5146}, {0.676875, 0.4958}, {0.714375, 0.4778},
 {0.751875, 0.4605}, {0.789375, 0.4438}, {0.826875, 0.4276}, {0.864375, 0.4118},
 {0.901875, 0.3964}, {0.939375, 0.3812}, {0.976875, 0.3662}, {1.01438, 0.3514},
 {1.05188, 0.3366}, {1.08938, 0.3219}, {1.12688, 0.307}, {1.16438, 0.2919},
 {1.20188, 0.2766}, {1.23938, 0.2608}, {1.27688, 0.2446}, {1.31438, 0.2276},
 {1.35188, 0.2096}, {1.38938, 0.1902}, {1.42688, 0.1691}, {1.46438, 0.1451}}
```