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Exit[]
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In[1]:=
```
s = 0.2; L = 0.1; xq = 10; r = 0.03; k = 0.4; t = 0.5; xMin = 5; xMax = 15;
Nx = 1000; dx = (xMax - xMin) / Nx; Nt = 400; dt = t / Nt;

xs = N[Range[xMin, xMax, dx]];

(*Analytic solution*)
m[x_, t_] := Exp[-L t] x + (1 - Exp[-L t]) xq
v[t_] := s^2/(2 L) (1 - Exp[-2 L t])
analytic[x_] := Exp[-r t - k m[x, t] + 1/2 v[t] k^2]

(*numerical solution*)
h[x_] := Exp[-k x]
step[i_, a_] := If[a (xs[[i]] - xq) < 0, a, 0] L/dx (xq - xs[[i]])
G = SparseArray[{{i_, i_} :> 1 + dt (r + s^2/dx^2 + step[i, 1] + step[i, -1]),
    {i_, j_} /; Abs[i - j] == 1 :> - dt (s^2/(2 dx^2) + step[i, If[j == i + 1, 1, -1]])},
   {Nx + 1, Nx + 1}];

(*relative difference in percent*)
ListLinePlot[
 Transpose[{xs, 100 MatrixPower[G, -Nt].(N[h /@ xs]) / (analytic /@ xs) - 100}]]
```

Out[10]=