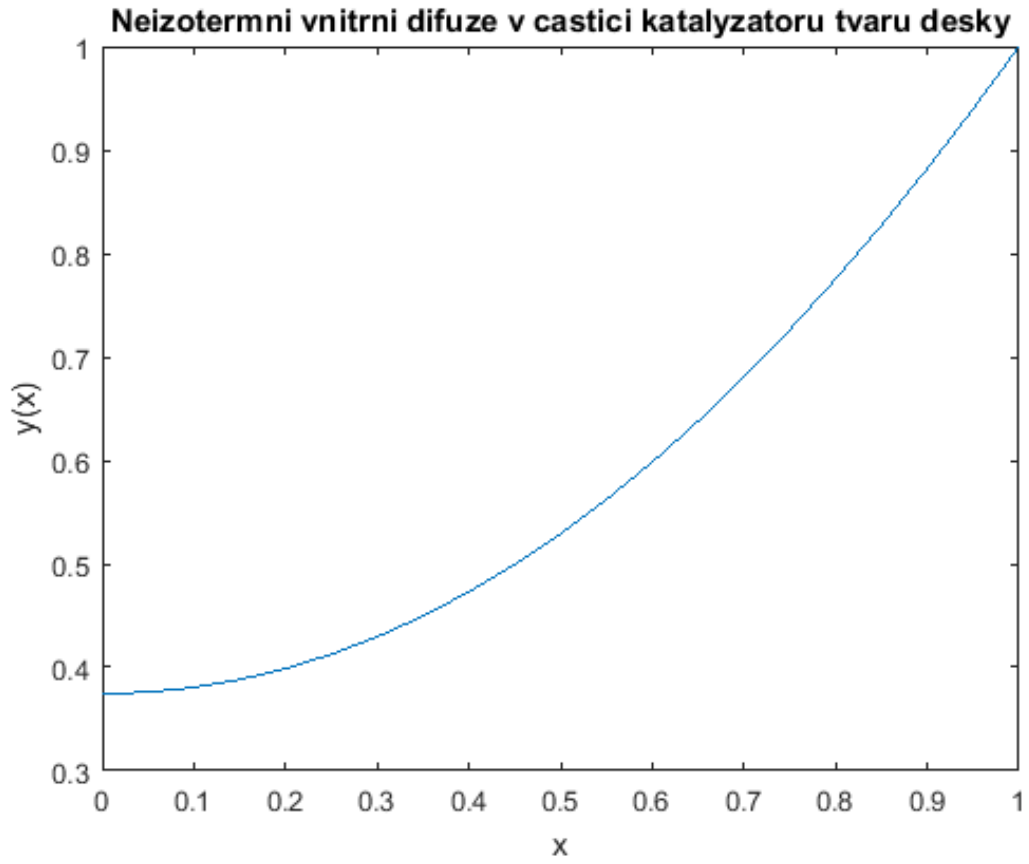
```
% y''= phi^2 * y * exp(alpha *beta *(1-y)/(1+beta(1-y))),
% y'(0)=0, y(1)=1
% phi = 1, alpha = 20, beta = 0.1
n = 20;
f = inline('y * exp((20*0.1*(1-y))/(1+0.1*(1-y)))','x','y','dy');
df2 = inline('exp((0.1*(1-y))/(1+0.1*(1-y)))*(1 - y * 0.1/(1+0.1*(1-y))^2)','x','y','dy');
df3 = inline('0','x','y','dy');
a = 0; b = 1;
alpha1 = 0;
alpha2 = 1;
beta1 = 1;
beta2 = 0;
gamma1 = 0;
gamma2 = 1;
y_init = [];
for i = 1:n+1;
    y_init(i) = 1;
end

N_eps = 1e-6;
N_maxiter = 50;
[x, y] = ODEsiteNewton(n, f, df2, df3, a, b, alpha1,alpha2, beta1,beta2, gamma1,gamma2, y_init,
N_eps, N_maxiter);
if (~isempty(y))
    figure
    plot (x,y)
    title('Neizotermni vnitrni difuze v castici katalyzatoru tvaru desky')
    xlabel('x')
    ylabel('y(x)')
end
```

```
Iterace Newtonovy metody:
k = 1, error =   1.22421507e+00
k = 2, error =   6.15887314e-01
k = 3, error =   2.06829194e-01
k = 4, error =   3.99698674e-02
k = 5, error =   5.93340016e-03
k = 6, error =   8.72939310e-04
k = 7, error =   1.29605332e-04
k = 8, error =   1.92894243e-05
k = 9, error =   2.87242606e-06
k = 10, error =   4.27785933e-07
Reseni:
   x      y(x)
0.000,   0.374465
0.050,   0.375986
0.100,   0.380551
0.150,   0.388170
0.200,   0.398864
0.250,   0.412657
0.300,   0.429579
0.350,   0.449661
```

```
0.400,   0.472934
0.450,   0.499426
0.500,   0.529157
0.550,   0.562139
0.600,   0.598374
0.650,   0.637846
0.700,   0.680527
0.750,   0.726368
0.800,   0.775302
0.850,   0.827244
0.900,   0.882090
0.950,   0.939721
1.000,   1.000000
```



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