Příklad číslo 4 - pomocné výpočty

$C := linalg[matrix](6, 6, [1, 1, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 0, 0, 27, 9, 3, 1, 3, 1, -3, -2, -1, 0, 6, 0, -6, -2, 0, 0, 0, 0, 18, 2, 0, 0])$;

$$\begin{bmatrix} 1 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 & 1 & 1 \\ 0 & 0 & 27 & 9 & 3 & 1 \\ 3 & 1 & -3 & -2 & -1 & 0 \\ 6 & 0 & -6 & -2 & 0 & 0 \\ 0 & 0 & 18 & 2 & 0 & 0 \end{bmatrix} \quad (1)$$

$c := linalg[matrix](6, 1, [-1/2, 1/2, 1/10, 0, 0, 0])$;

$$\begin{bmatrix} -\frac{1}{2} \\ \frac{1}{2} \\ \frac{1}{10} \\ 0 \\ 0 \\ 0 \end{bmatrix} \quad (2)$$

$C1 := inverse(C)$;

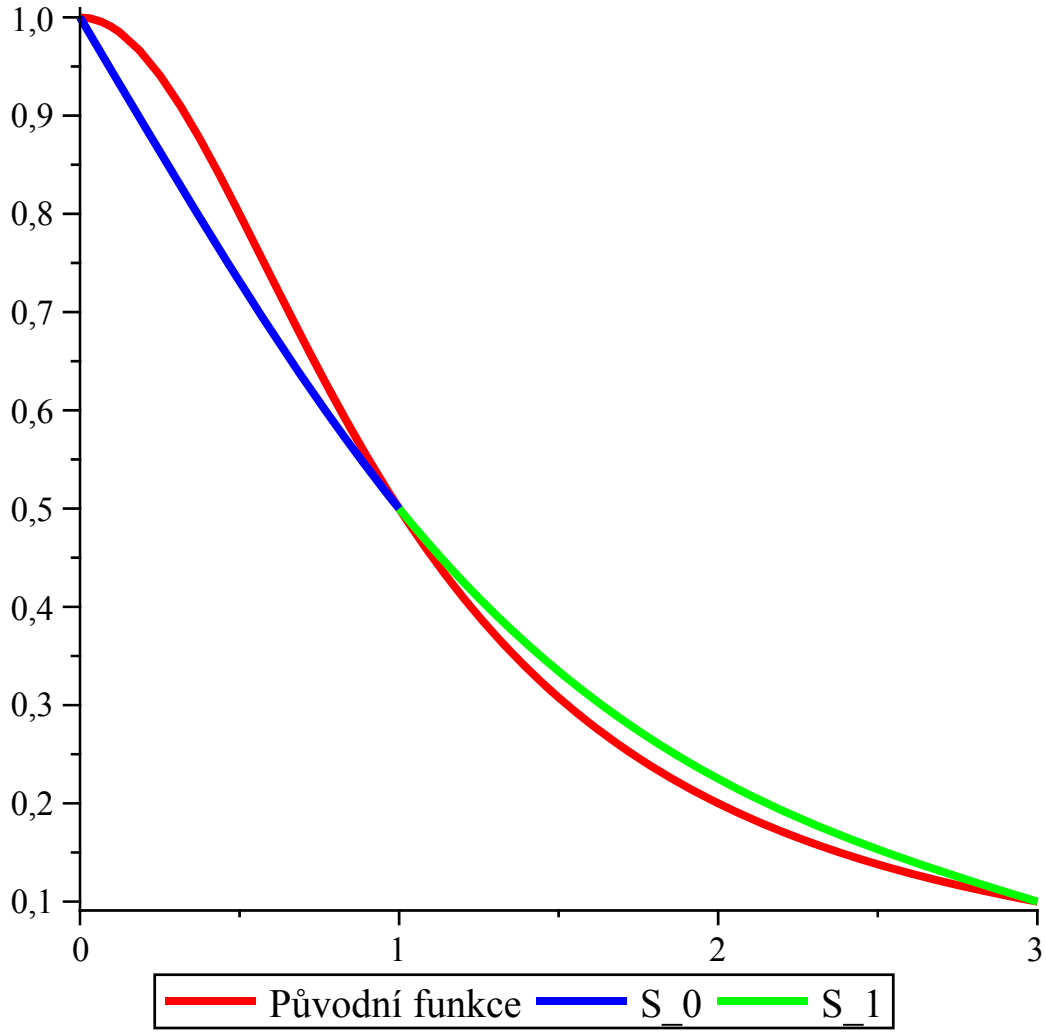
$$\begin{bmatrix} -\frac{1}{6} & -\frac{1}{12} & \frac{1}{12} & \frac{1}{6} & \frac{1}{9} & -\frac{1}{18} \\ \frac{7}{6} & \frac{1}{12} & -\frac{1}{12} & -\frac{1}{6} & -\frac{1}{9} & \frac{1}{18} \\ \frac{1}{12} & \frac{1}{24} & -\frac{1}{24} & -\frac{1}{12} & \frac{1}{36} & \frac{1}{9} \\ -\frac{3}{4} & -\frac{3}{8} & \frac{3}{8} & \frac{3}{4} & -\frac{1}{4} & -\frac{1}{2} \\ \frac{23}{12} & \frac{11}{24} & -\frac{11}{24} & -\frac{23}{12} & \frac{23}{36} & \frac{5}{9} \\ -\frac{5}{4} & \frac{7}{8} & \frac{1}{8} & \frac{5}{4} & -\frac{5}{12} & -\frac{1}{6} \end{bmatrix} \quad (3)$$

$linalg[multiply](C1, c)$;

$$\begin{bmatrix} \frac{1}{20} \\ -\frac{11}{20} \\ -\frac{1}{40} \\ \frac{9}{40} \\ -\frac{31}{40} \\ \frac{43}{40} \end{bmatrix} \quad \textbf{(4)}$$

Na příslušném intervalu:

```
with(plots):
multiple(plot, [1/(1+x^2), x=0..3, color=red, thickness=3, legend="Původní funkce"], [1-11
    /20*x+1/20*x^3, x=0..1, color=blue, thickness=3, legend="S_0"], [43/40-31/40*x+9
    /40*x^2-1/40*x^3, x=1..3, color=green, thickness=3, legend="S_1"]);
```



Mimo něj:

```
multiple(plot, [1/(1+x^2), x=-5..7, color=red, thickness=3, legend="Původní funkce"], [1-11
    /20*x+1/20*x^3, x=-5..4, color=blue, thickness=3, legend="S_0"], [43/40-31/40*x+9
    /40*x^2-1/40*x^3, x=-2..7, color=green, thickness=3, legend="S_1"]);
```