```
Clear[xn, s, B]
```

```
xn = {1/2, 1, 2, 31/10, 4, 42/10}; s = 2.6;
B[i_, j_] :=
 Piecewise[{{0, j == 0 && ! (xn[[i + 1]] <= s <= xn[[i + 2]])},
   {1/(xn[[i+2]] - xn[[i+1]]), j == 0 && xn[[i + 1]] <= s <= xn[[i + 2]]},
   {(x - xn[[i+1]])/(xn[[i+j+2]] - xn[[i+1]]) B[i, j - 1] +
     (xn[[i+j+2]] - x)/(xn[[i+j+2]] - xn[[i+1]]) B[i + 1, j - 1], j > 0}}]
```

```
B[2, 0]
```

$$\frac{10}{11}$$

```
B[0, 4] // Simplify
```

$$\frac{25\left(1\,236\,179 - 2\,364\,668\,x + 1\,625\,034\,x^2 - 460\,124\,x^3 + 45\,839\,x^4\right)}{14\,666\,652}$$

```
TableForm[Table[Table[B[i, j], {j, 0, 4 - i}], {i, 0, 4}] // Expand,
 TableAlignments -> Center, TableHeadings ->
  {Table["i=" <> ToString[i], {i, 0, 4}], Table["j=" <> ToString[j], {j, 0, 4}]}]
```

	j=0	j=1	j=2	j=3	j=4
i=0	0	0	$\frac{4805}{3003} - \frac{3100\,x}{3003} + \frac{500\,x^2}{3003}$	$-\frac{2735}{1287} + \frac{8390\,x}{3003} - \frac{3260\,x^2}{3003} + \frac{170\,x^3}{1287}$	$\frac{4\,414\,925}{2\,095\,236} - \frac{14\,779\,175\,x}{3\,666\,663} + \frac{6\,770\,975\,x^2}{2\,444\,442} - \frac{410\,825\,x^3}{523\,809} + \frac{1\,145\,975\,x^4}{14\,666\,652}$
i=1	0	$\frac{310}{231} - \frac{100\,x}{231}$	$-\frac{1150}{693} + \frac{1040\,x}{693} - \frac{205\,x^2}{693}$	$\frac{97\,775}{60\,984} - \frac{47\,375\,x}{20\,328} + \frac{22\,175\,x^2}{20\,328} - \frac{9575\,x^3}{60\,984}$	
i=2	$\frac{10}{11}$	$-\frac{10}{11} + \frac{5\,x}{11}$	$\frac{100}{121} - \frac{100\,x}{121} + \frac{25\,x^2}{121}$		
i=3	0	0			
i=4	0				

```
TableForm[Table[Table[B[i, j], {j, 0, 4 - i}] /. x -> s, {i, 0, 4}] // Expand,
 TableAlignments -> Center, TableHeadings ->
  {Table["i=" <> ToString[i], {i, 0, 3}], Table["j=" <> ToString[j], {j, 0, 4}]}]
```

	j=0	j=1	j=2	j=3	j=4
i=0	0	0	0.041625	0.12206	0.137838
i=1	0	0.21645	0.242713	0.158547	
i=2	$\frac{10}{11}$	0.272727	0.0743802		
i=3	0	0			
	0				

```
B[0, 4] /. x -> s
```

```
0.137838
```