```
> with(CurveFitting);
```

[*ArrayInterpolation*, *BSpline*, *BSplineCurve*, *Interactive*, *LeastSquares*, *PolynomialInterpolation*, *RationalInterpolation*, *Spline*, *ThieleInterpolation*] **(1)**

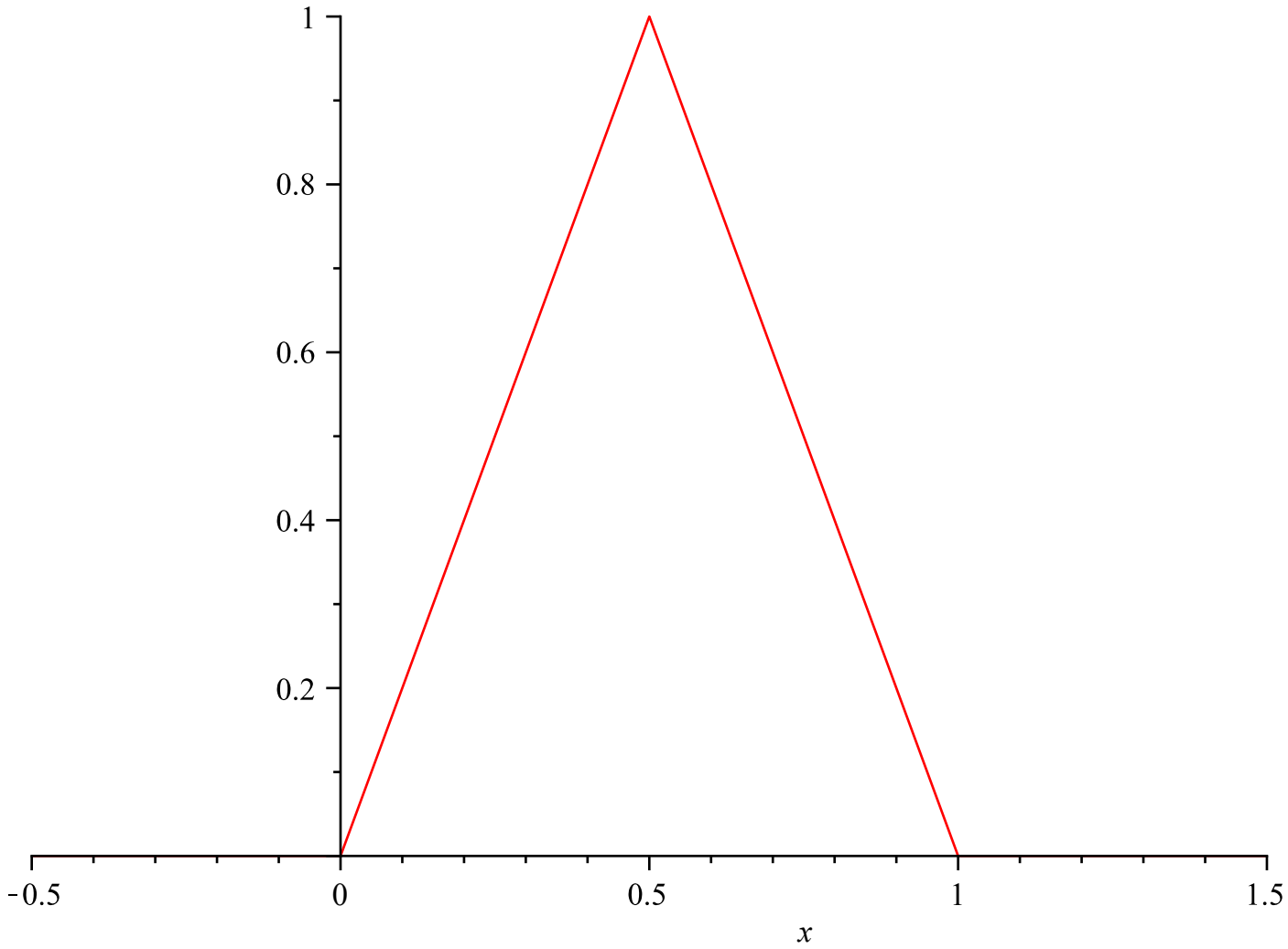
```
> kn:= [0,0.5,1];
```

$$kn := [0, 0.5, 1] \quad \textbf{(2)}$$

```
> BSpline(2,x,knots=kn);
```

$$\begin{cases} 0 & x < 0 \\ 2.000000000\,x & x < 0.5 \\ 2.000000000 - 2.000000000\,x & x < 1 \\ 0 & 1 \le x \end{cases} \quad \textbf{(3)}$$

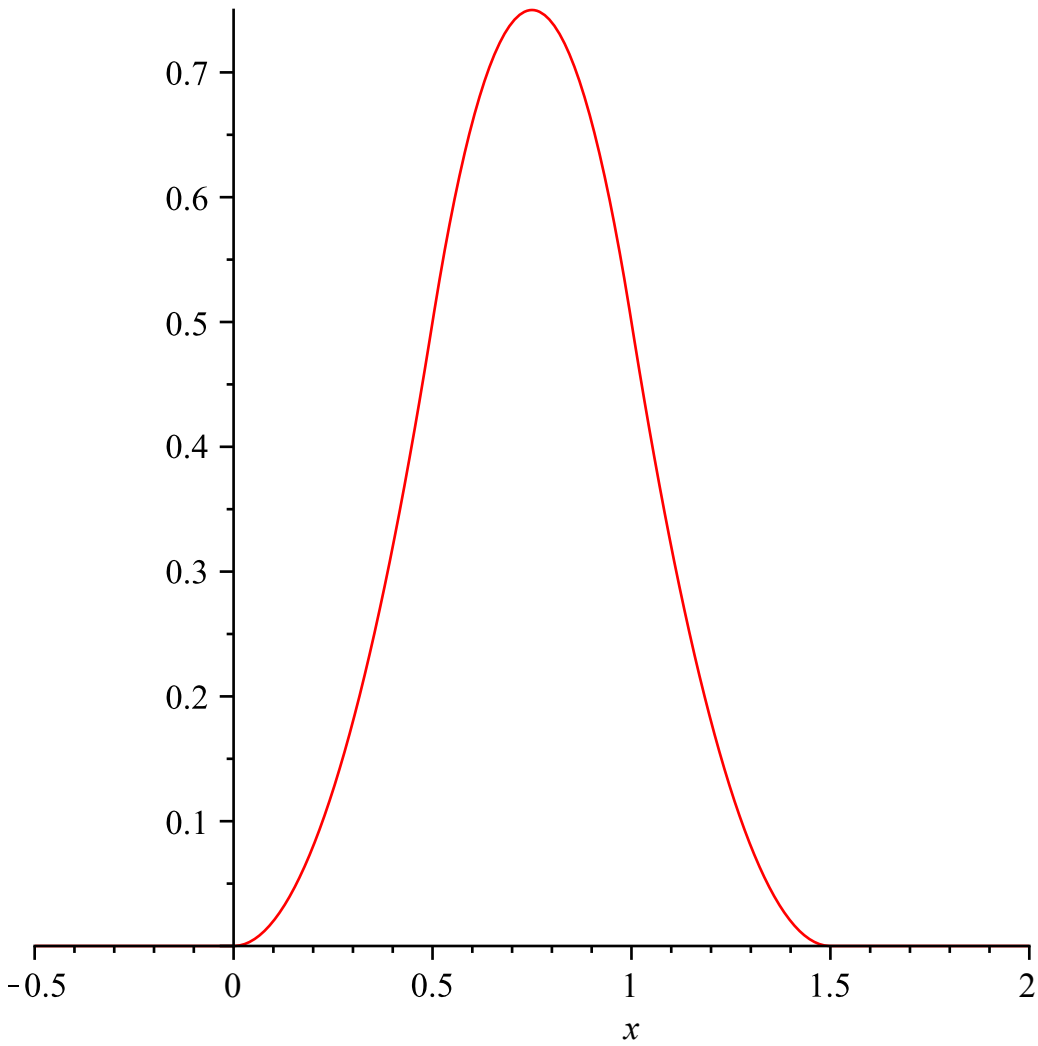
```
> plot(BSpline(2,x,knots=kn),x=-0.5..1.5);
```




```
> kn2:=[0,0.5,1,1.5];
  BSpline(3,x,knots=kn2);
  plot(BSpline(3,x,knots=kn2),x=-0.5..2.0);
```

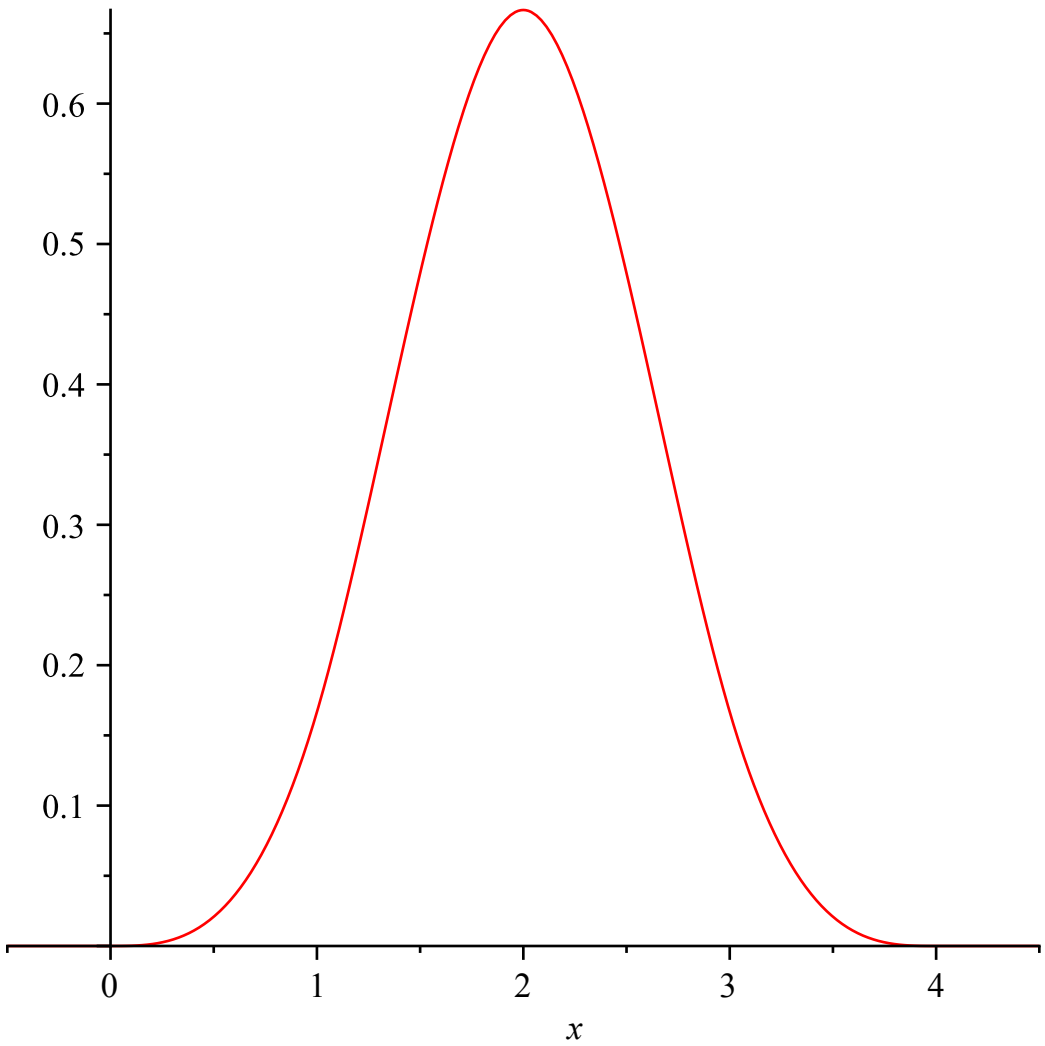
$$kn2 := [0, 0.5, 1, 1.5]$$

$$\begin{cases} 0 & x < 0 \\ 2.000000000\,x^2 & x < 0.5 \\ -0.5000000000 + 2.000000000\,x - 4.000000000\,(x-0.5)^2 & x < 1 \\ 2.500000000 - 2.000000000\,x + 2.000000000\,(x-1)^2 & x < 1.5 \\ 0 & 1.5 \le x \end{cases}$$

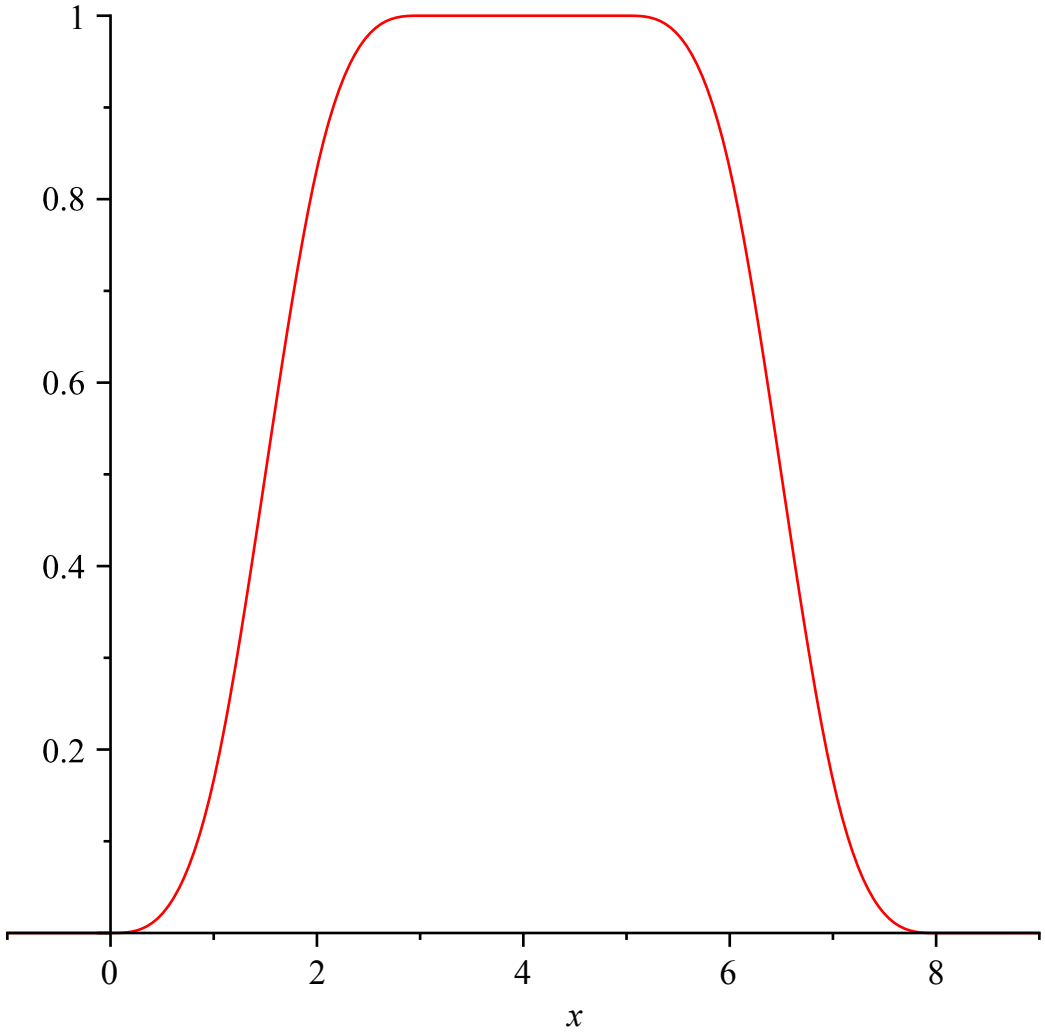



```
> kn3:=[0,1,2,3,4];
  plot(BSpline(4,x,knots=kn3),x=-0.5..4.5);
```

$$kn3 := [0, 1, 2, 3, 4]$$



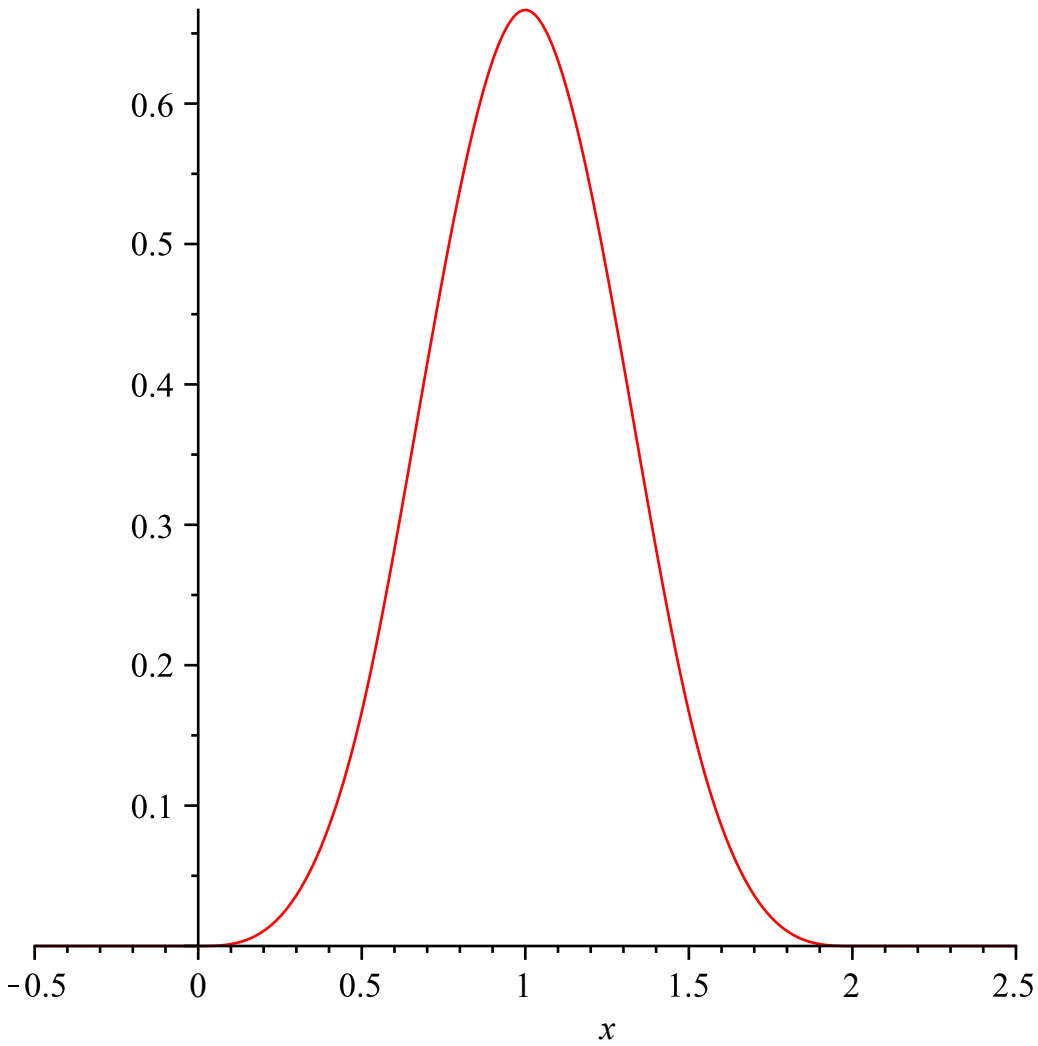

```
> n0:=[0,1,2,3,4]:
  n1:=[1,2,3,4,5]:
  n2:=[2,3,4,5,6]:
  n3:=[3,4,5,6,7]:
  n4:=[4,5,6,7,8]:

> plot(BSpline(4,x,knots=n0)+BSpline(4,x,knots=n1)+BSpline(4,x,knots=n2)+
  BSpline(4,x,knots=n3)+BSpline(4,x,knots=n4),x=-1..9);
```




```
> kn3:=[0,0.5,1,1.5,2.0];
  BSpline(4,x,knots=kn3);
  plot(BSpline(4,x,knots=kn3),x=-0.5..2.5);
```

$$kn3 := [0, 0.5, 1, 1.5, 2.0]$$

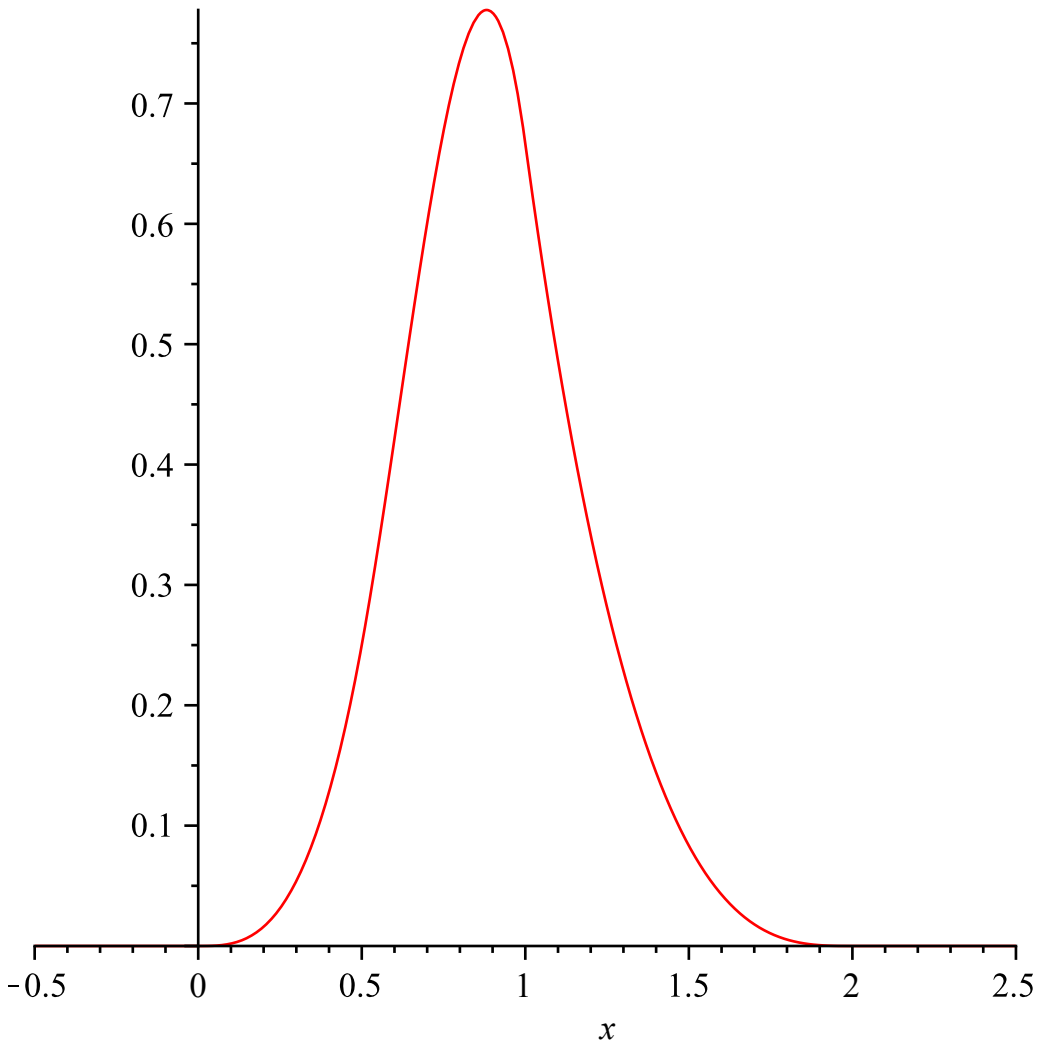
$$\begin{cases} 0 & x < 0 \\ 1.333333333\, x^3 & x < 0.5 \\ -0.3333333333 + 0.9999999998\, x + 2.000000000\, (x - 0.5)^2 - 3.999999999\, (x - 0.5)^3 & x < 1 \\ 0.6666666665 - 3.999999999\, (x - 1)^2 + 4.000000001\, (x - 1)^3 & x < 1.5 \\ 1.666666670 - 1.000000002\, x + 1.999999998\, (x - 1.5)^2 - 1.333333331\, (x - 1.5)^3 & x < 2.0 \\ 0 & 2.0 \le x \end{cases}$$




```
> kn3:=[0,0.5,1.0,1.0,2.0];
  BSpline(4,x,knots=kn3);
  plot(BSpline(4,x,knots=kn3),x=-0.5..2.5);
```

$$kn3 := [0, 0.5, 1.0, 1.0, 2.0]$$

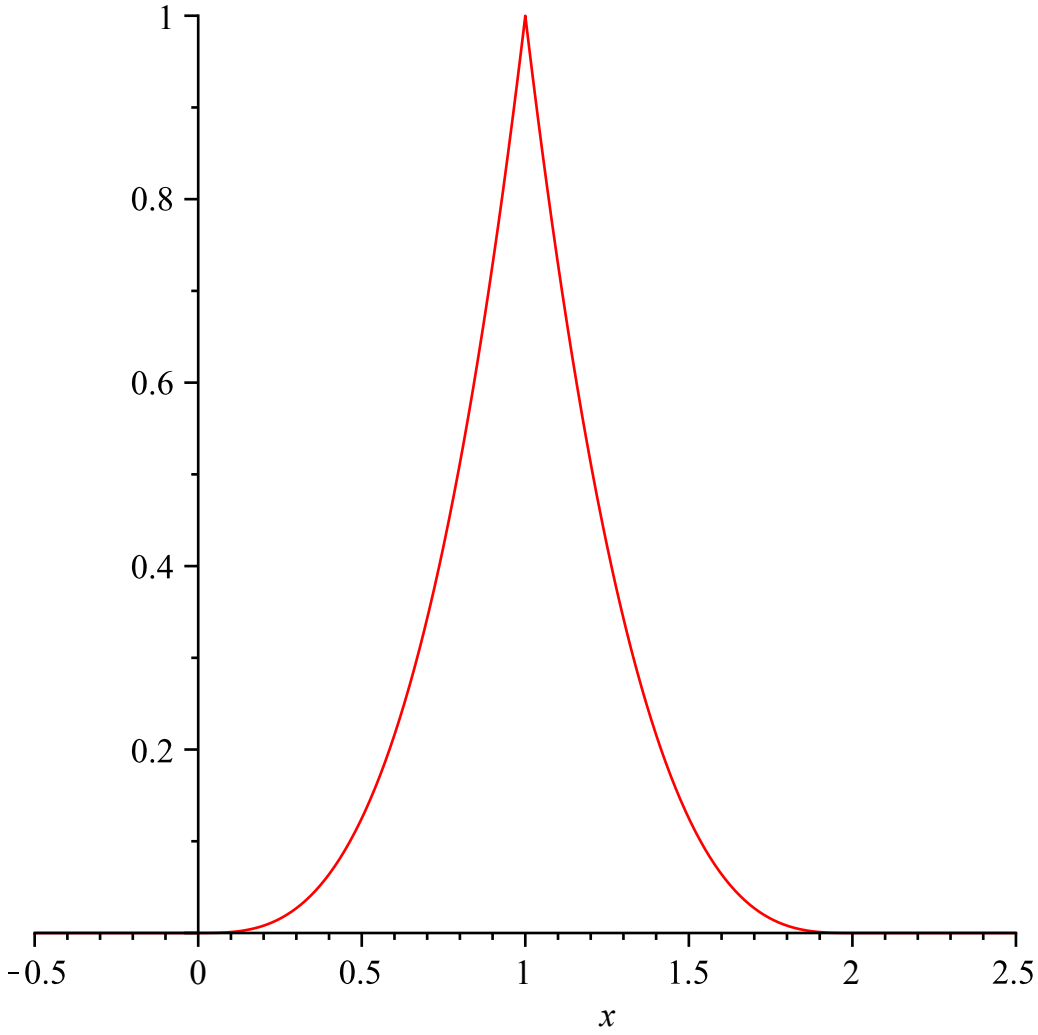
$$\begin{cases} 0 & x < 0 \\ 2.000000000\, x^3 & x < 0.5 \\ -0.5000000000 + 1.500000000\, x + 3.000000000\, (x-0.5)^2 - 8.666666670\, (x-0.5)^3 & x < 1.0 \\ 2.666666668 - 2.000000002\, x + 2.000000000\, (x-1.0)^2 - 0.666666670\, (x-1.0)^3 & x < 2.0 \\ 0 & 2.0 \le x \end{cases}$$




```
> kn3:=[0,1.0,1.0,1.0,2.0];
  BSpline(4,x,knots=kn3);
  plot(BSpline(4,x,knots=kn3),x=-0.5..2.5);
```

$$kn3 := [0, 1.0, 1.0, 1.0, 2.0]$$

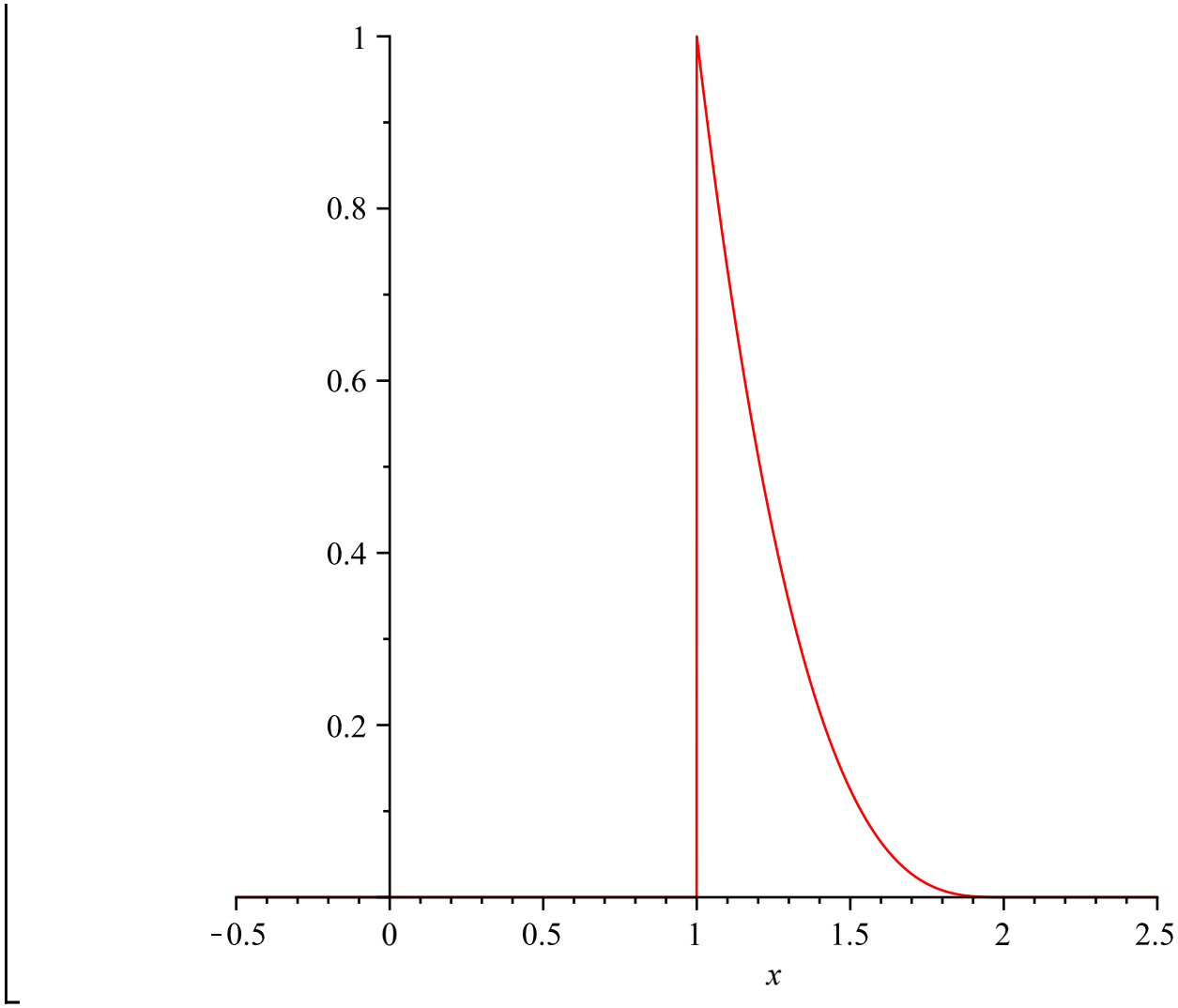
$$\begin{cases} 0 & x < 0 \\ 1.000000000\,x^3 & x < 1.0 \\ 4.000000000 - 3.000000000\,x + 3.000000000\,(x-1.0)^2 - 1.000000000\,(x-1.0)^3 & x < 2.0 \\ 0 & 2.0 \le x \end{cases}$$




```
> kn3:=[1.0,1.0,1.0,1.0,2.0];
  BSpline(4,x,knots=kn3);
  plot(BSpline(4,x,knots=kn3),x=-0.5..2.5);
```

$$kn3 := [1.0, 1.0, 1.0, 1.0, 2.0]$$

$$\begin{cases} 0 & x < 1.0 \\ 4.000000000 - 3.000000000\,x + 3.000000000\,(x-1.0)^2 - 1.000000000\,(x-1.0)^3 & x < 2.0 \\ 0 & 2.0 \le x \end{cases}$$


1
0.8
0.6
0.4
0.2
-0.5
0
0.5
1
1.5
2
2.5
x