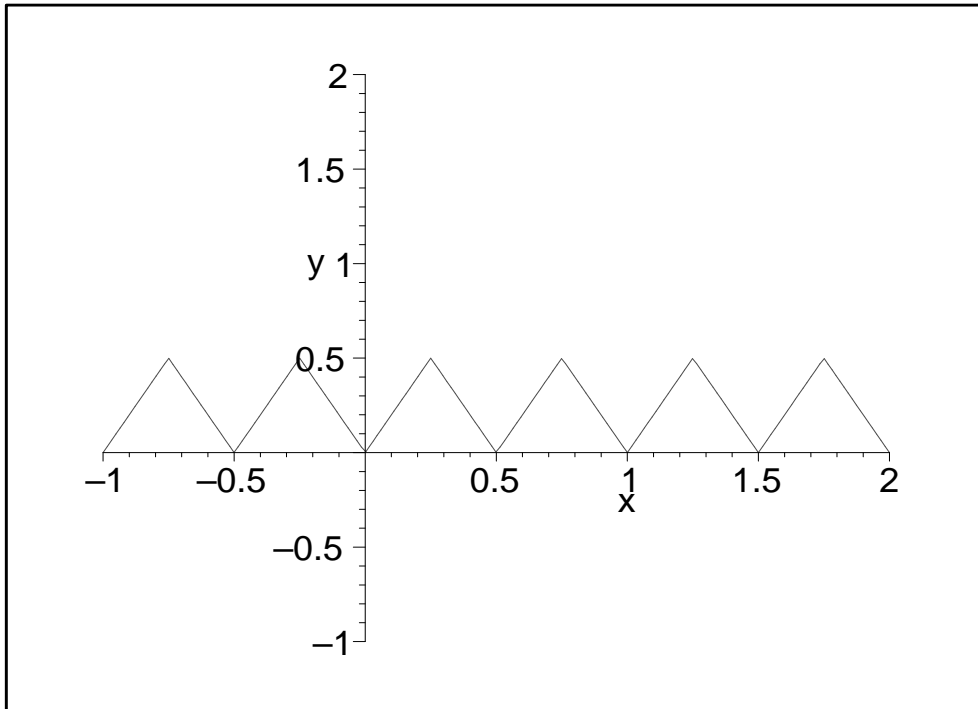
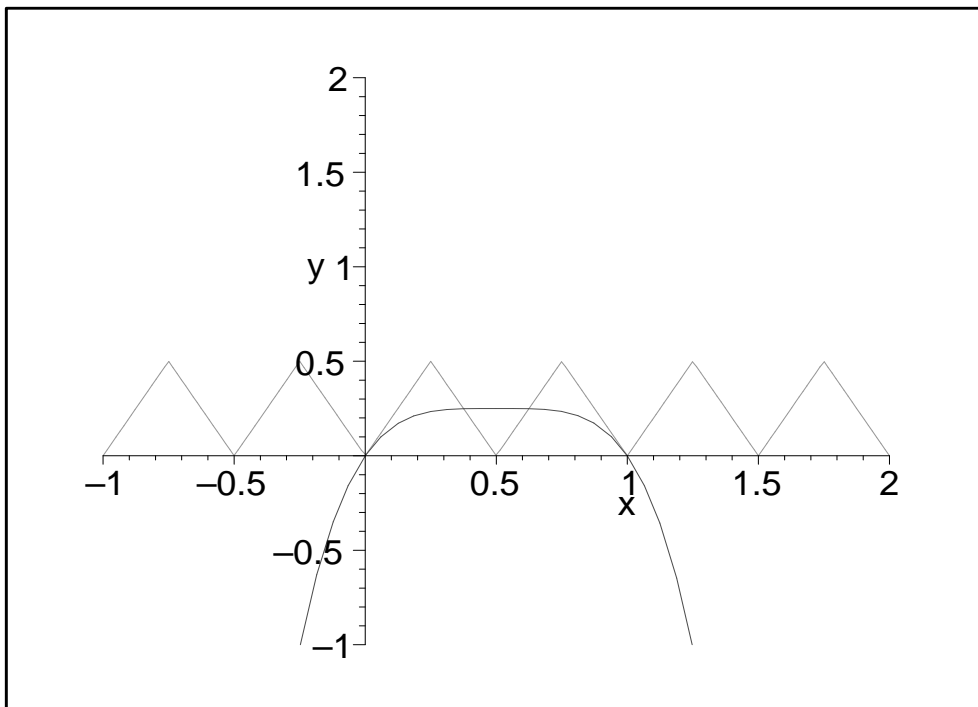


## Bernsteinpolynome und Weierstraßscher Approximationssatz

```
> f := x->abs(frac(2*abs(x-0.25))-0.5);  
f := x -> |frac(2 |x - .25|) - .5|  
> plot(f(x), x=-1..2, y=-1..2);
```



```
> b := bernstein(4, f, x);  
b := 2.0x - 6.0x2 + 8.0x3 - 4.0x4  
> plot([b, f(x)], x=-1..2, y=-1..2);
```





```
> Digits := 20;
```

*Digits := 20*

```
> b := bernstein(40, f, x);
```

$$\begin{aligned} b := & 2.000000000000000000 x + .7003848104000000000 10^{11} x^{39} \\ & - .16479792155112000000 10^{14} x^{36} + .3939845950040000000 10^{13} x^{37} \\ & - .6626104399200000000 10^{12} x^{38} + .2255124737946600000 10^{15} x^{33} \\ & - .1225670887459200000 10^{15} x^{34} + .5133786180494400000 10^{14} x^{35} \\ & - .5702636202120000000 10^{15} x^{29} + .27384914769555200000 10^{15} x^{31} \\ & - .3100806127762200000 10^{15} x^{32} + .1378137082179000000 10^{16} x^{28} \\ & - .2245248974122000000 10^{16} x^{27} + .2935676624760000000 10^{16} x^{26} \\ & + .3116710016620200000 10^{16} x^{24} - .1212747504076680000 10^{16} x^{21} \\ & + .1904108116669200000 10^{16} x^{22} - .2606247430113600000 10^{16} x^{23} \\ & - .3251555429584176000 10^{16} x^{25} - .3501924052000000000 10^{10} x^{40} \\ & + .6702098231228400000 10^{15} x^{20} + .1297070194992000000 10^{15} x^{18} \\ & - .3191475348204000000 10^{15} x^{19} - .28761121715040000 10^{13} x^{15} \\ & + .1258299075033000000 10^{14} x^{16} - .4441055558940000000 10^{14} x^{17} \\ & - .66182725840000000 10^{11} x^{13} + .51055245648000000 10^{12} x^{14} \\ & - .2311801440000000 10^9 x^{11} + .5586853480000000 10^{10} x^{12} \end{aligned}$$

```
> plot([b, f(x)], x=-1..2, y=-1..2, numpoints = 2000);
```

