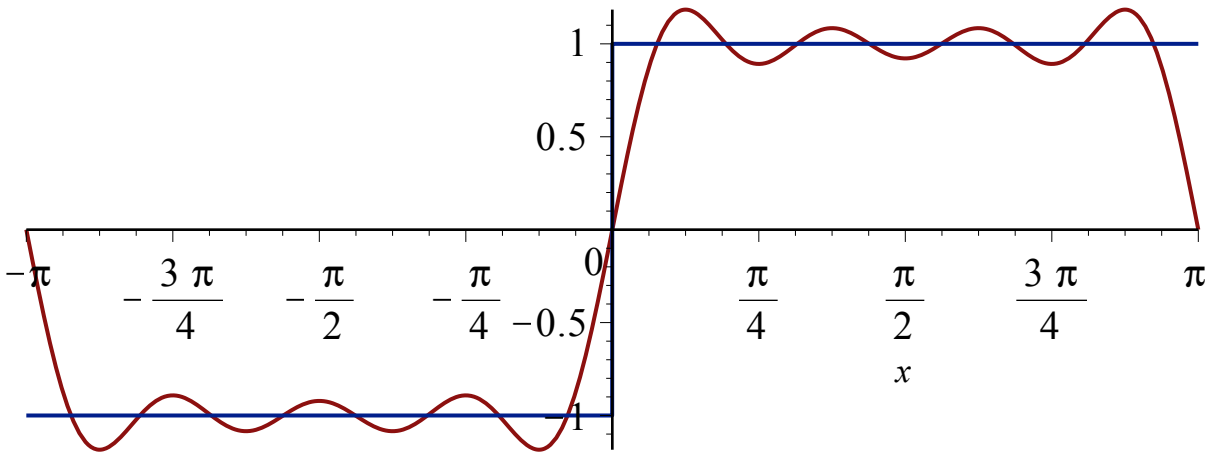
```
> fe := proc(f) fnormal(evalf(f)); end:
> a := proc(f, n)
  if n = 0 then fe( 1/(2·π) · ∫_{-π}^{π} f dx );
  else fe( 1/π · ∫_{-π}^{π} f·cos(n·x) dx );
  fi;
  end:
> b := proc(f, n)
  if n = 0 then 0;
  else fe( 1/π · ∫_{-π}^{π} f·sin(n·x) dx );
  fi;
  end:
> fs := (f, n) → Σ_{k=0}^{n} 'a(f, k)·cos(k·x) + b(f, k)·sin(k·x)'
```

$$fs := (f, n) \to \sum_{k=0}^{n} 'a(f, k)\cos(k\,x) + b(f, k)\sin(k\,x)' \tag{1}$$

```
> fun := { -1   x < 0
         {  1   x ≥ 0
```

$$fun := \begin{cases} -1 & x < 0 \\ 1 & 0 \le x \end{cases} \tag{2}$$

```
> plot( {fun, fs(fun, 7)}, x = -π .. π, scaling = constrained )
```


1
0.5
0
−0.5
−1
−π
−3 π/4
−π/2
−π/4
π/4
π/2
3 π/4
π
x

>

>