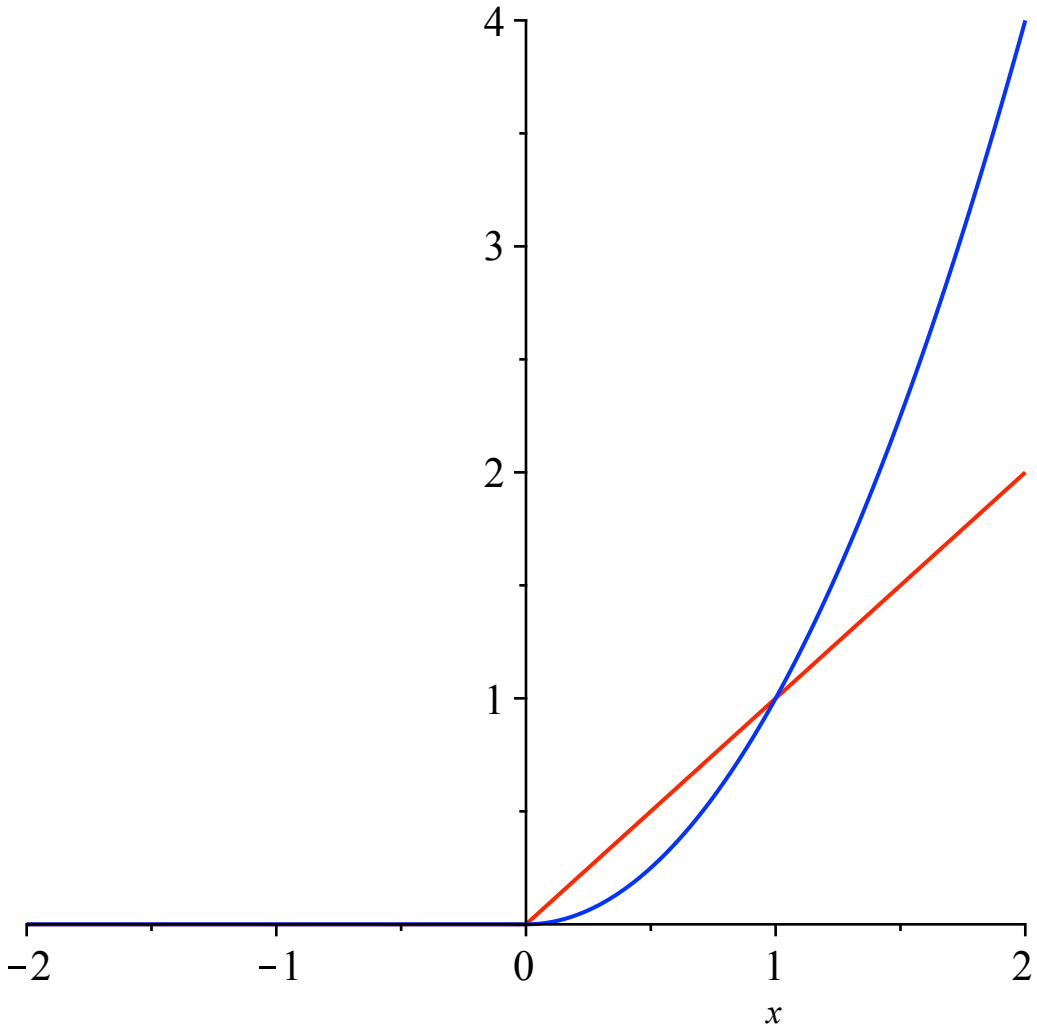
```
> f1 := x·Heaviside(x); f2 := x^2·Heaviside(x)
```

$$f1 := x\,\mathrm{Heaviside}(x)$$

$$f2 := x^2\,\mathrm{Heaviside}(x) \qquad \textbf{(1)}$$

```
> plot([f1, f2], x = -2..2, color = ['red','blue'])
```

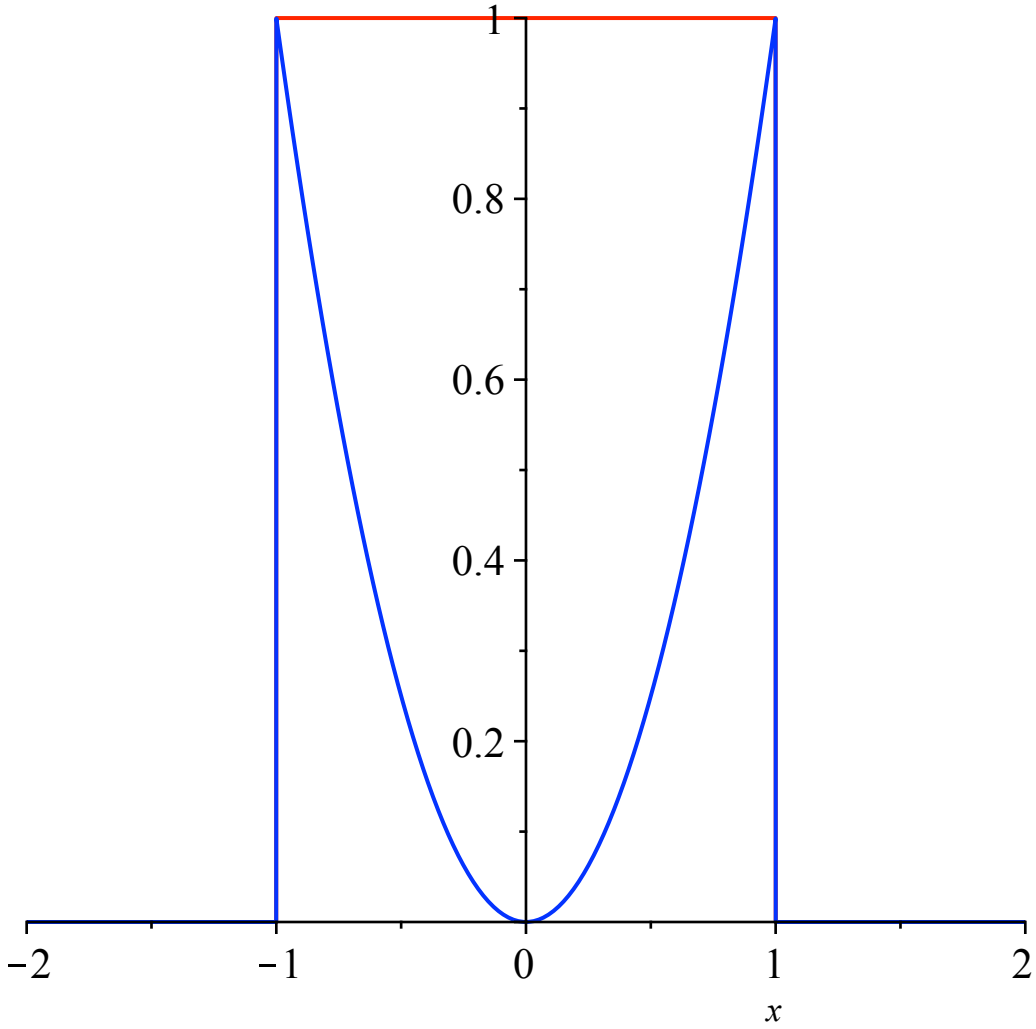



```
> f3 := Heaviside(x + 1) − Heaviside(x − 1); f4 := (Heaviside(x + 1) − Heaviside(x − 1))·x^2
```

$$f3 := \mathrm{Heaviside}(x+1) - \mathrm{Heaviside}(x-1)$$

$$f4 := (\mathrm{Heaviside}(x+1) - \mathrm{Heaviside}(x-1))\,x^2 \qquad \textbf{(2)}$$

```
> plot([f3, f4], x = -2..2, color = ['red','blue'])
```



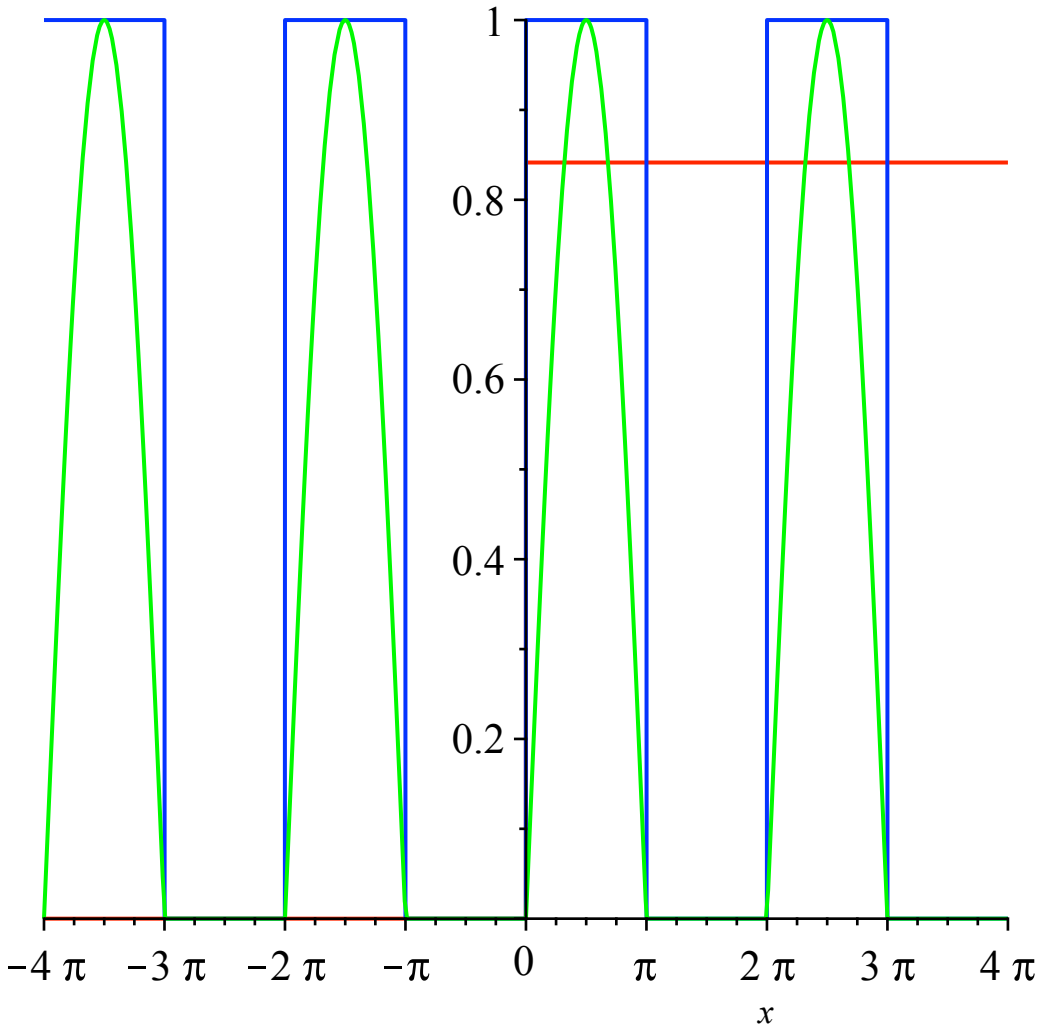

```
> f5 := sin(Heaviside(x)); f6 := Heaviside(sin(x)); f7 := f6·sin(x);
```

$$f5 := \sin(\mathrm{Heaviside}(x))$$

$$f6 := \mathrm{Heaviside}(\sin(x))$$

$$f7 := \mathrm{Heaviside}(\sin(x))\,\sin(x) \qquad \textbf{(3)}$$

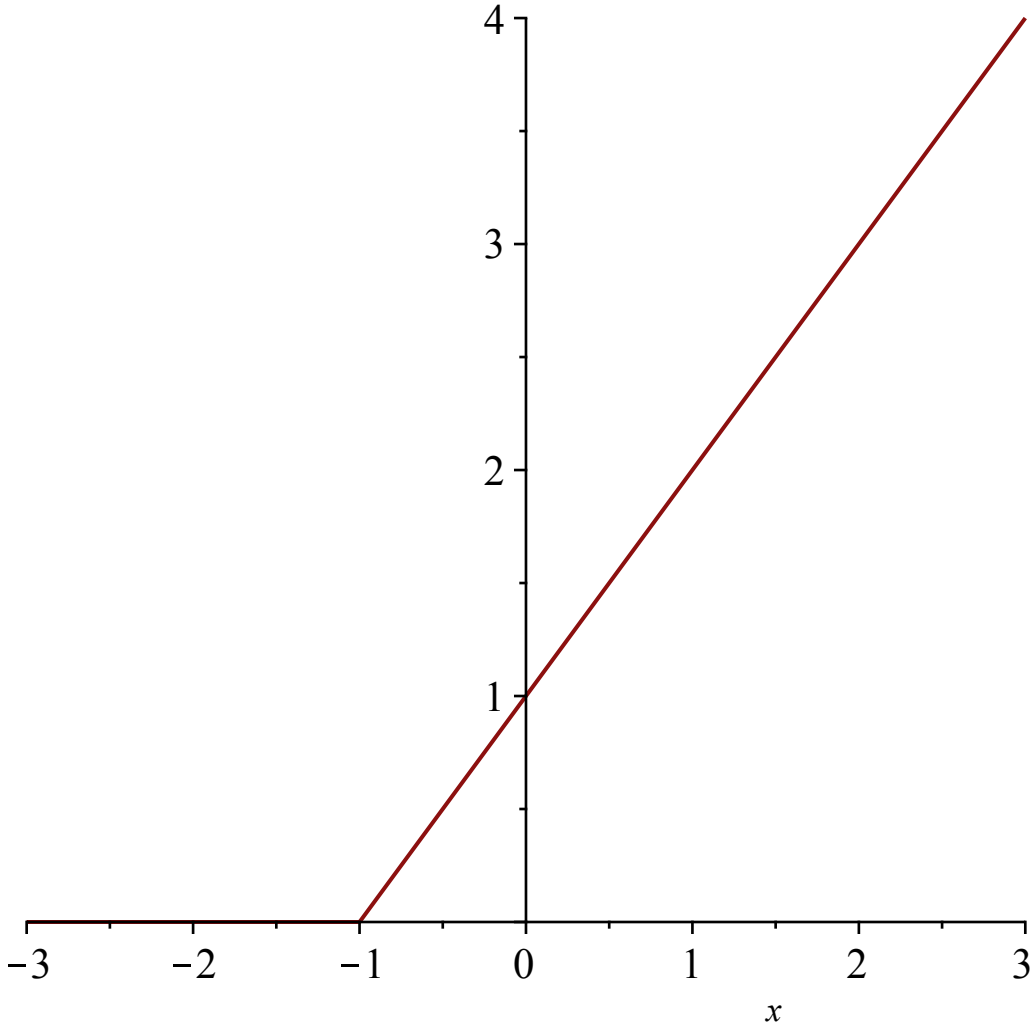
```
> plot([f5, f6, f7], x = -4·Pi..4·Pi, color = ['red','blue','green'])
```



For Q2 I build the function out of what I know from Q1.

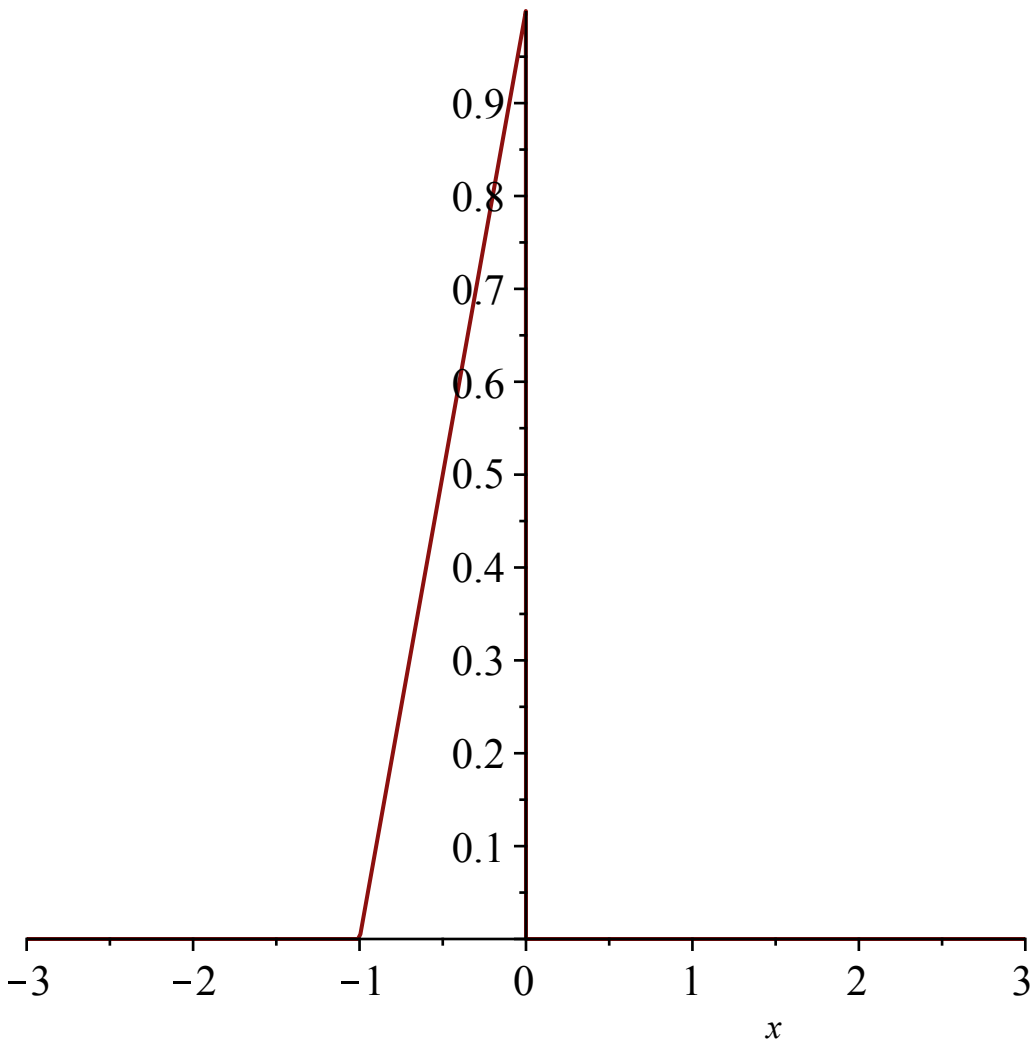
```
> fpc1 := (x + 1)·Heaviside(x + 1); plot(fpc1, x = -3 ..3)
```

$$fpc1 := (x+1)\,\mathrm{Heaviside}(x+1)$$



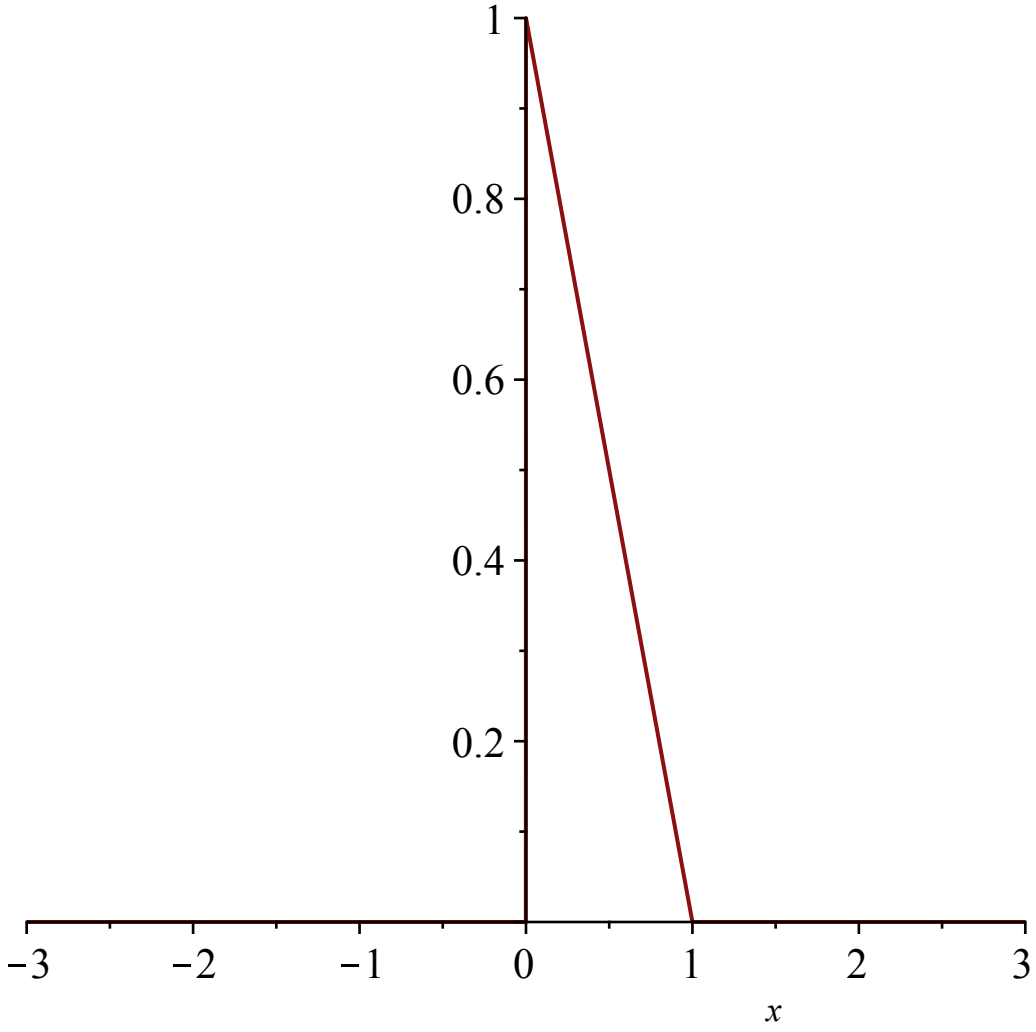

```
> fpc1b := (x + 1)·(Heaviside(x + 1) − Heaviside(x)); plot(fpc1b, x = -3 ..3)
```

$$fpc1b := (x+1)\,(\text{Heaviside}(x+1) - \text{Heaviside}(x))$$



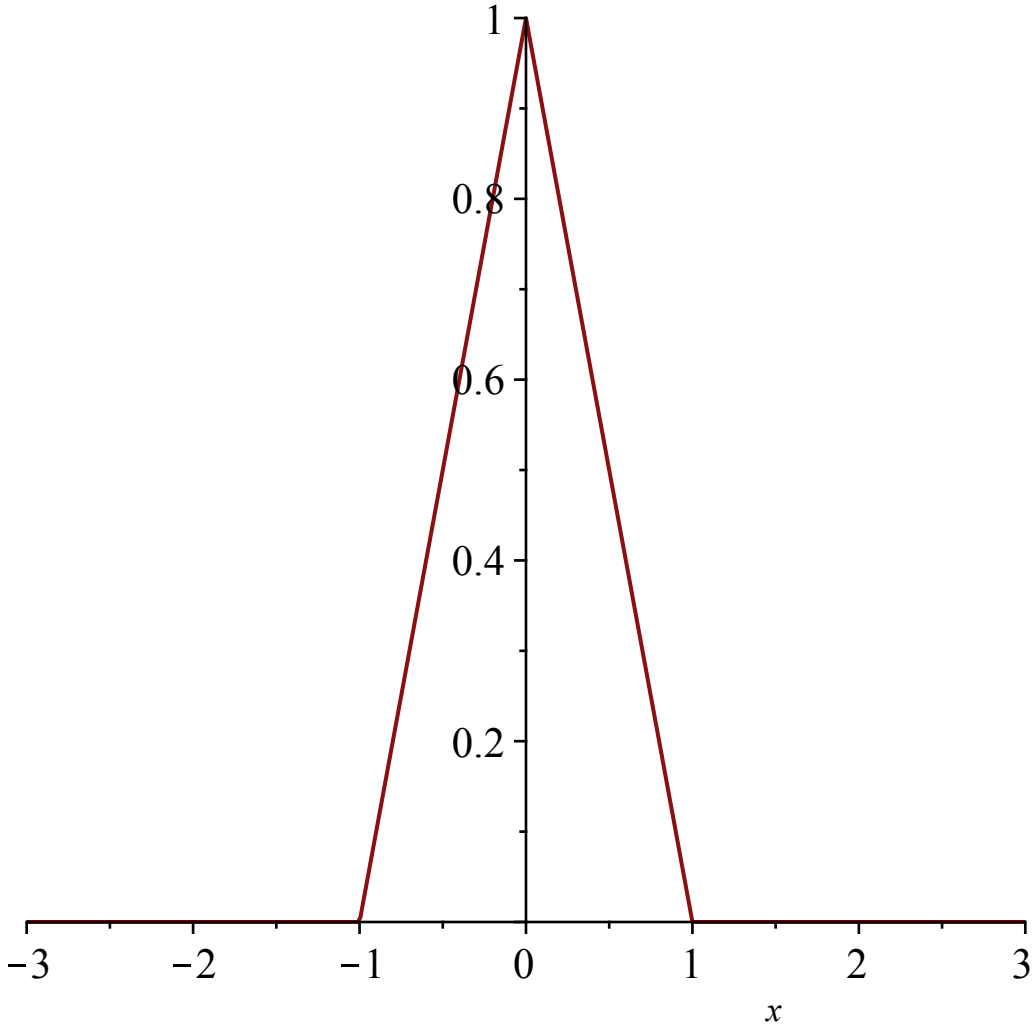
> $fpc2 := (1 - x) \cdot (\text{Heaviside}(x) - \text{Heaviside}(x - 1)); plot(fpc2, x = -3..3)$

$$fpc2 := (1 - x)\,(\text{Heaviside}(x) - \text{Heaviside}(x - 1))$$



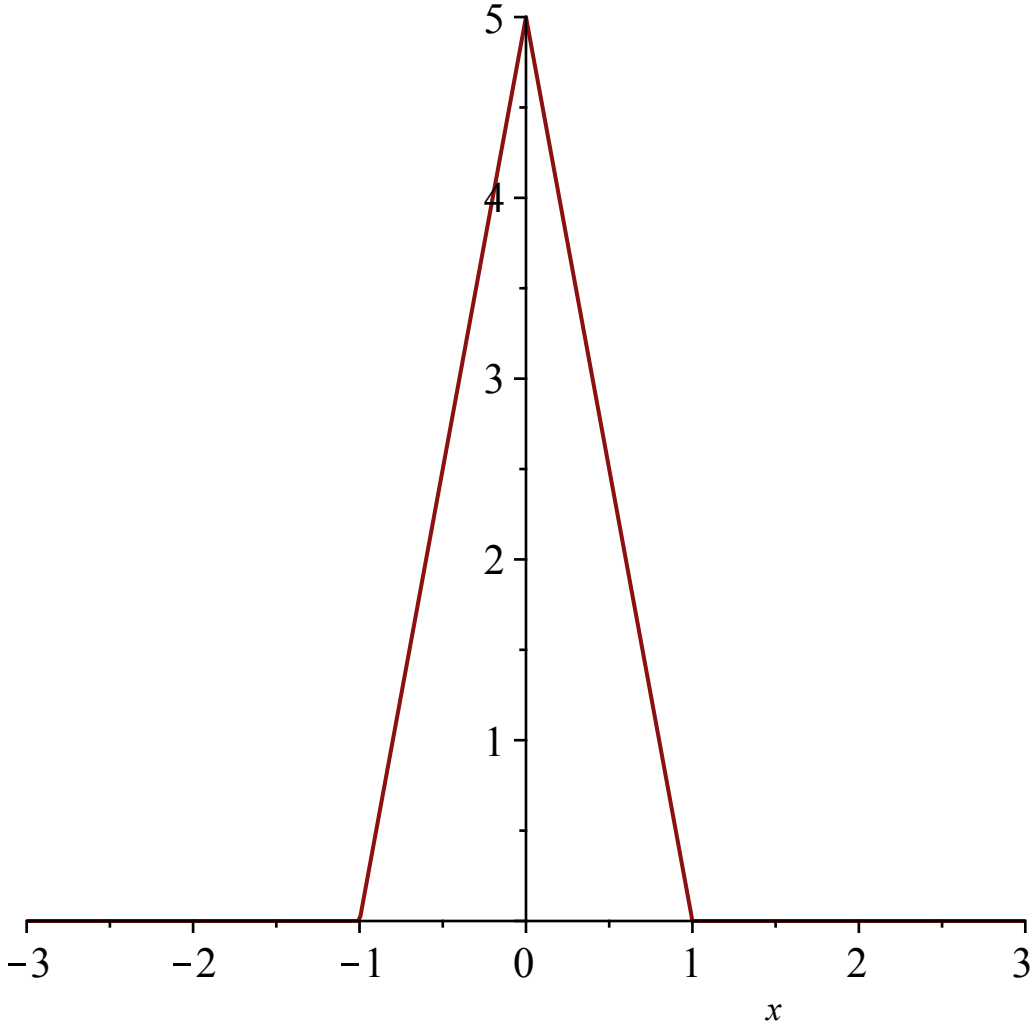

```
> ftry1 := fpc1b + fpc2; plot(ftry1, x = -3 ..3)
```

$$ftry1 := (x+1)\,(\text{Heaviside}(x+1) - \text{Heaviside}(x)) + (1-x)\,(\text{Heaviside}(x) - \text{Heaviside}(x-1))$$




```
> f1final := 5·(fpc1b + fpc2); plot(f1final, x = -3..3)
```

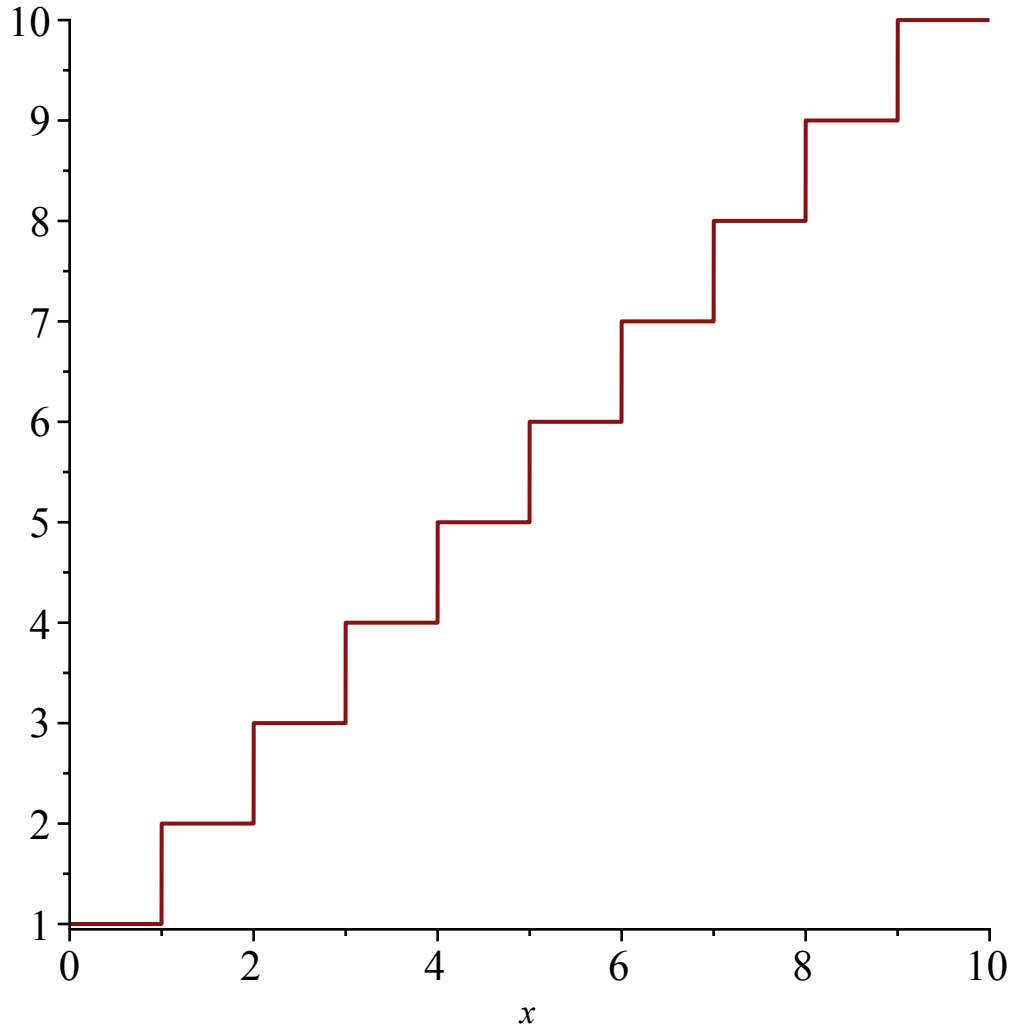
$$f1final := 5\,(x+1)\,(\text{Heaviside}(x+1) - \text{Heaviside}(x)) + 5\,(1-x)\,(\text{Heaviside}(x) - \text{Heaviside}(x-1))$$




```
> f2final := sum(Heaviside(x − n), n = 0..10)
```

$$f2final := \text{Heaviside}(x) + \text{Heaviside}(x-1) + \text{Heaviside}(x-2) + \text{Heaviside}(x-3) + \text{Heaviside}(x-4) + \text{Heaviside}(x-5) + \text{Heaviside}(x-6) + \text{Heaviside}(x-7) + \text{Heaviside}(x-8) + \text{Heaviside}(x-9) + \text{Heaviside}(x-10) \quad \textbf{(4)}$$

```
> plot(f2final, x = 0..10)
```


10
9
8
7
6
5
4
3
2
1
0
2
4
6
8
10
x