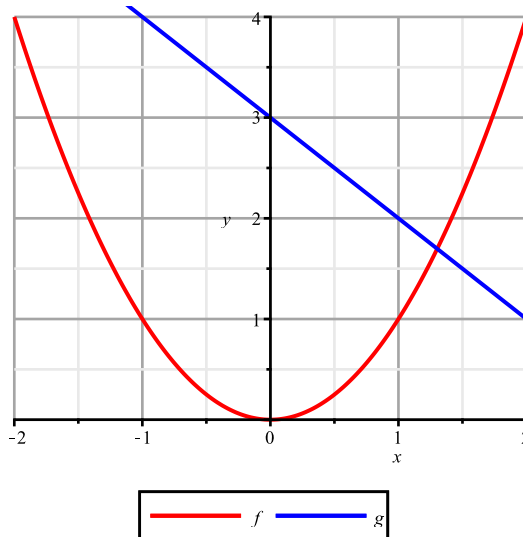


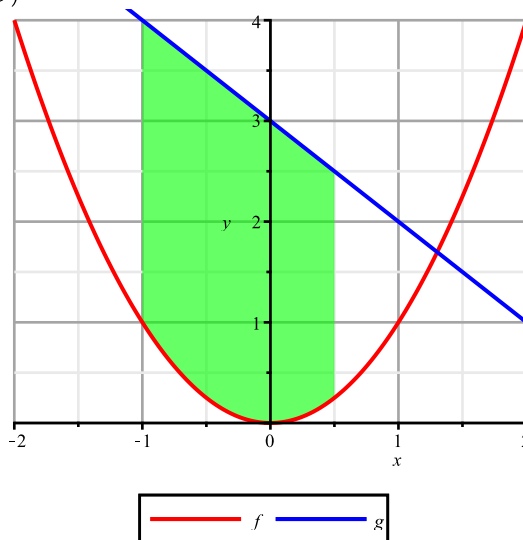
## Parametrisering af område mellem 2 funktioner

- > `restart`
- > `with(plots) :`
- > `f(x) := x2 :`
- > `g(x) := 3 - x :`
- > `GrafF := plot(f(x), x=-2..2, y=0..4, gridlines, color = red, legend=f) :`
- > `GrafG := plot(g(x), x=-2..2, y=0..4, gridlines, color = blue, legend=g) :`
- > `display(GrafF, GrafG)`



Ønsker at parametrisere området mellem funktioner for  $x \in \left[-1; \frac{1}{2}\right]$  :

- > `Område := shadebetween(f(x), g(x), x=-1..1/2, color = green, showboundary=false) :`
- > `display(GrafF, GrafG, Område)`



## Generel formel:

Parametrisering af området mellem  $f(x)$  og  $g(x)$  for  $x$  fra  $a$  til  $b$

$$r(u, v) = (u, f(u) + v \cdot (g(u) - f(u))) \quad \text{for } u \in [a; b] \quad \text{og } v \in [0; 1]$$

Når  $v = 0$  befinder man sig i  $f(u)$ , dvs.  $f(x)$

Når  $v = 1$  befinder man sig i  $f(u) + 1 \cdot (g(u) - f(u)) = g(u)$ , dvs.  $g(x)$

Tjek:

- > `r(u, v) := <u, f(u) + v \cdot (g(u) - f(u))> :`
- > `'r(u, v)' = r(u, v)`

$$r(u, v) = \begin{bmatrix} u \\ u^2 + v(-u^2 - u + 3) \\ 0 \end{bmatrix} \quad (1)$$

```
> plot3d( $\langle r(u, v)[1], r(u, v)[2], 0 \rangle$ ,  $u = -1 \dots \frac{1}{2}$ ,  $v = 0 \dots 1$ , labels = [x, y, " "], axes = normal, orientation = [-90, 0], view = [-2 \dots 2, 0 \dots 4, -1 \dots 1])
```

