

$$\text{Minimize } f(x, y) = (x-4)^2 + (y-4)^2$$

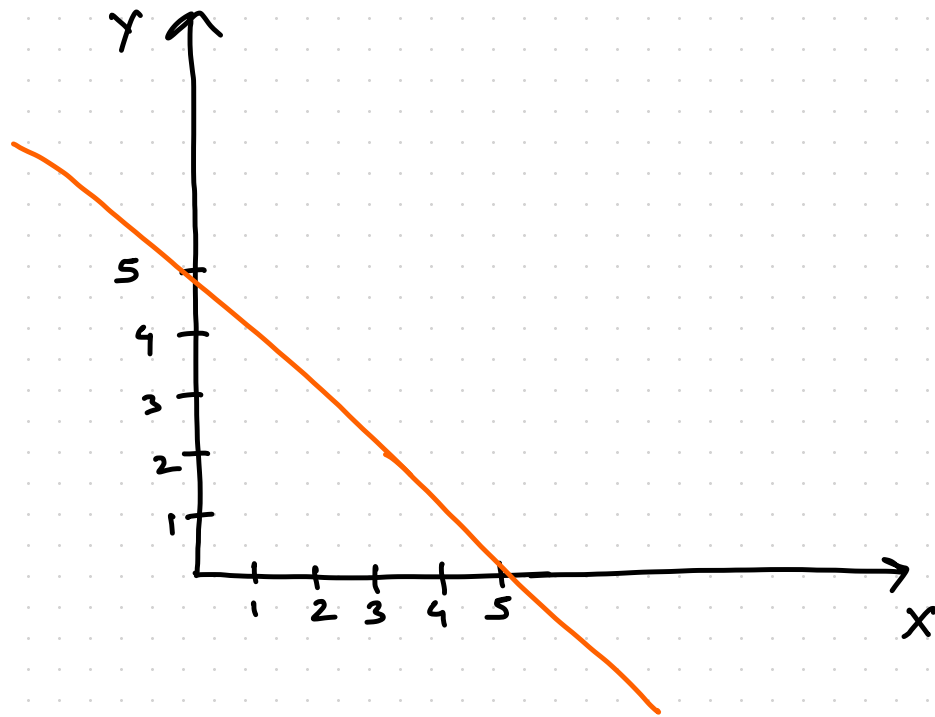
$$\text{s.t. } x+y \geq 5$$

$$\text{Minimize } f(x, y) = (x-4)^2 + (y-4)^2$$

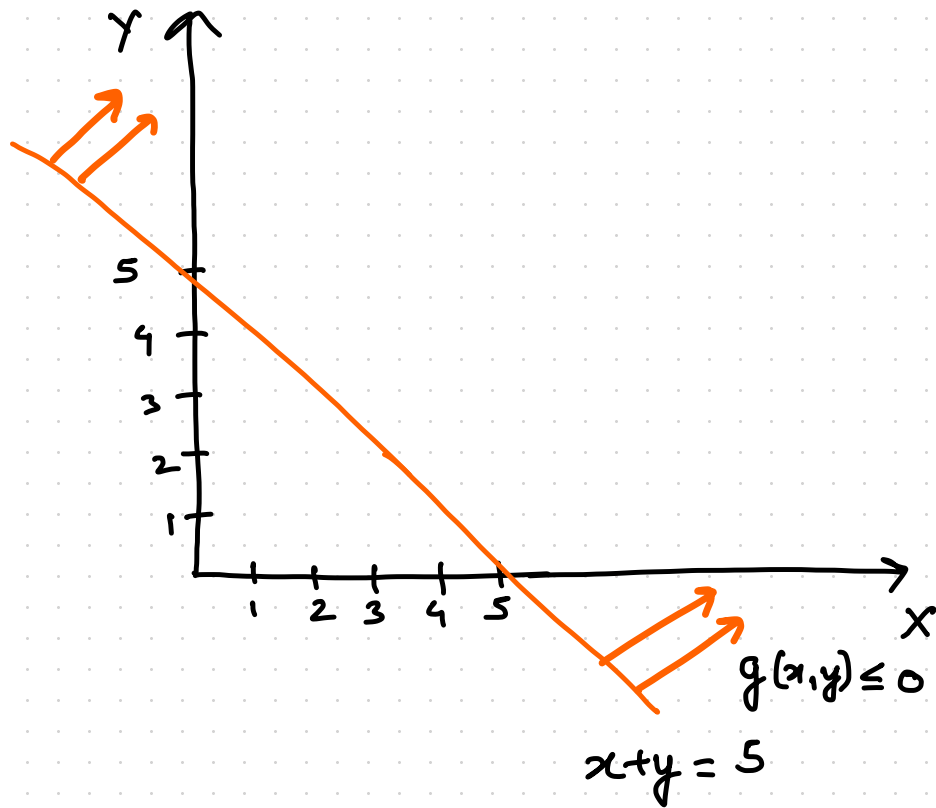
$$\text{s.t. } x+y \geq 5$$

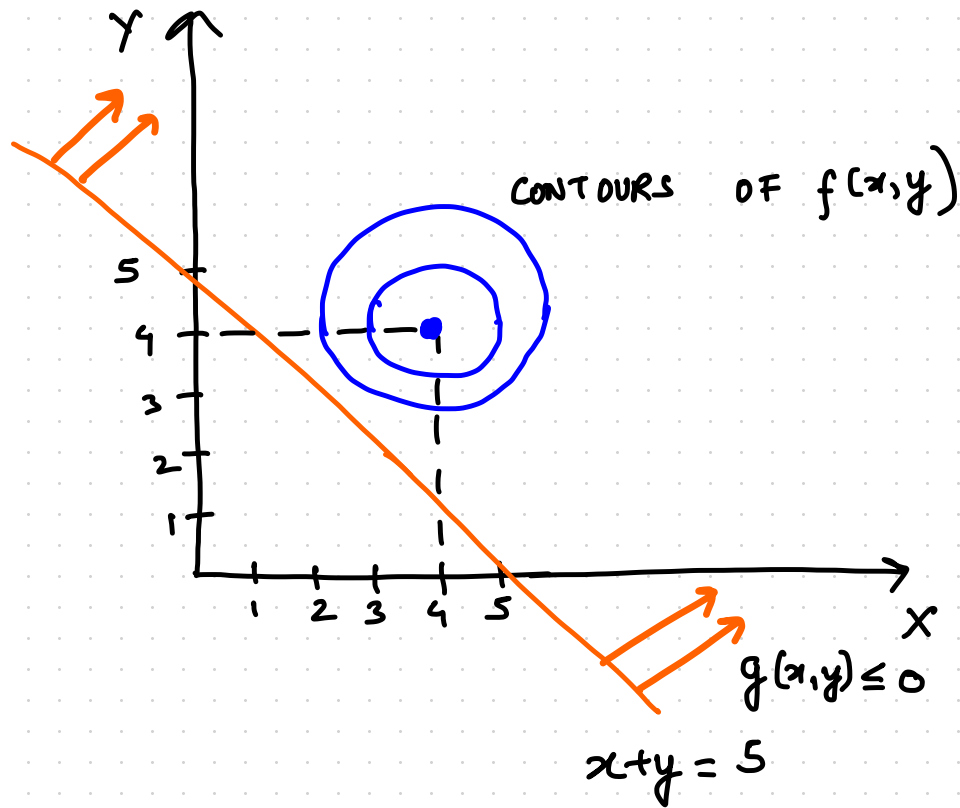
$$f(x, y) = (x-4)^2 + (y-4)^2$$

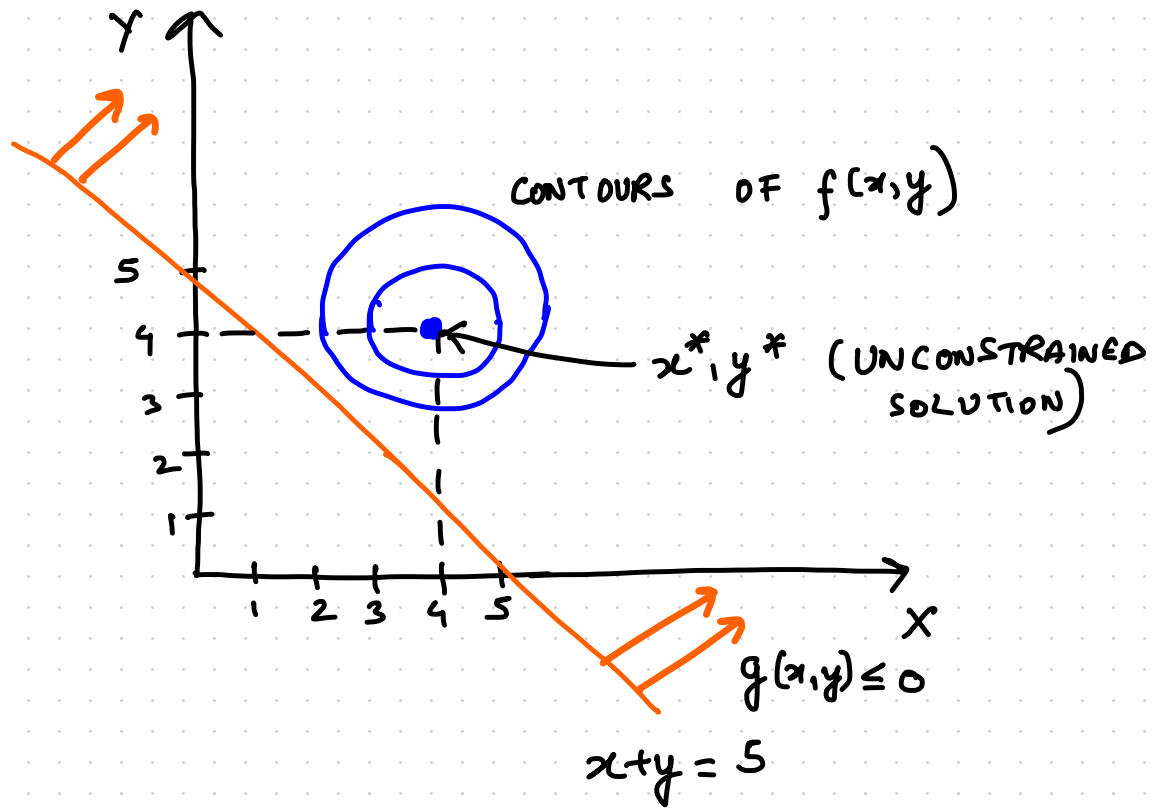
$$g(x, y) = -x - y + 5 \leq 0$$

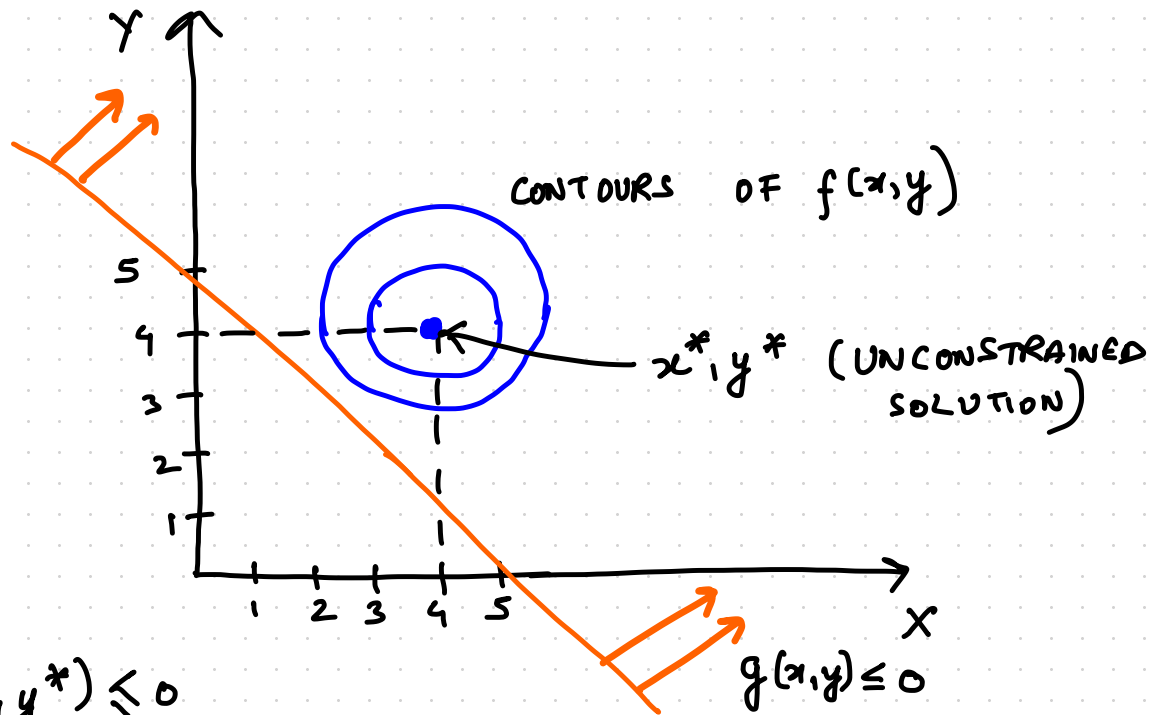


$$x + y = 5$$









$$g(x^*, y^*) \leq 0$$

CONSTRAINT DOES NOT
TAKE PART

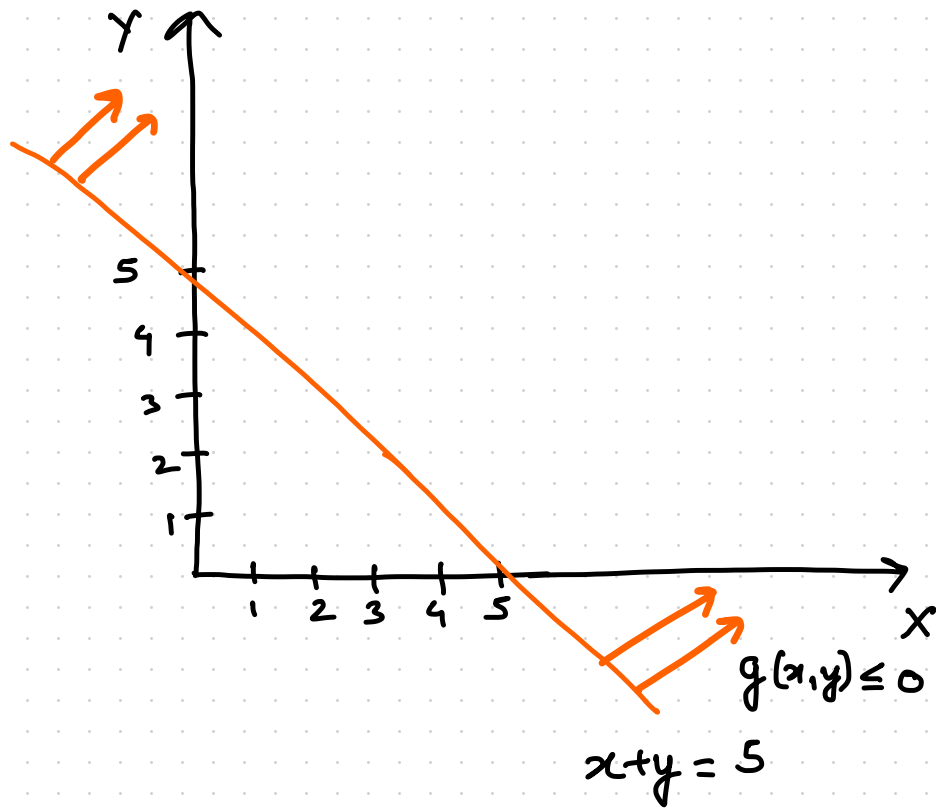
$$\Rightarrow \mu = 0 \Rightarrow \boxed{\mu g(x,y) = 0}$$

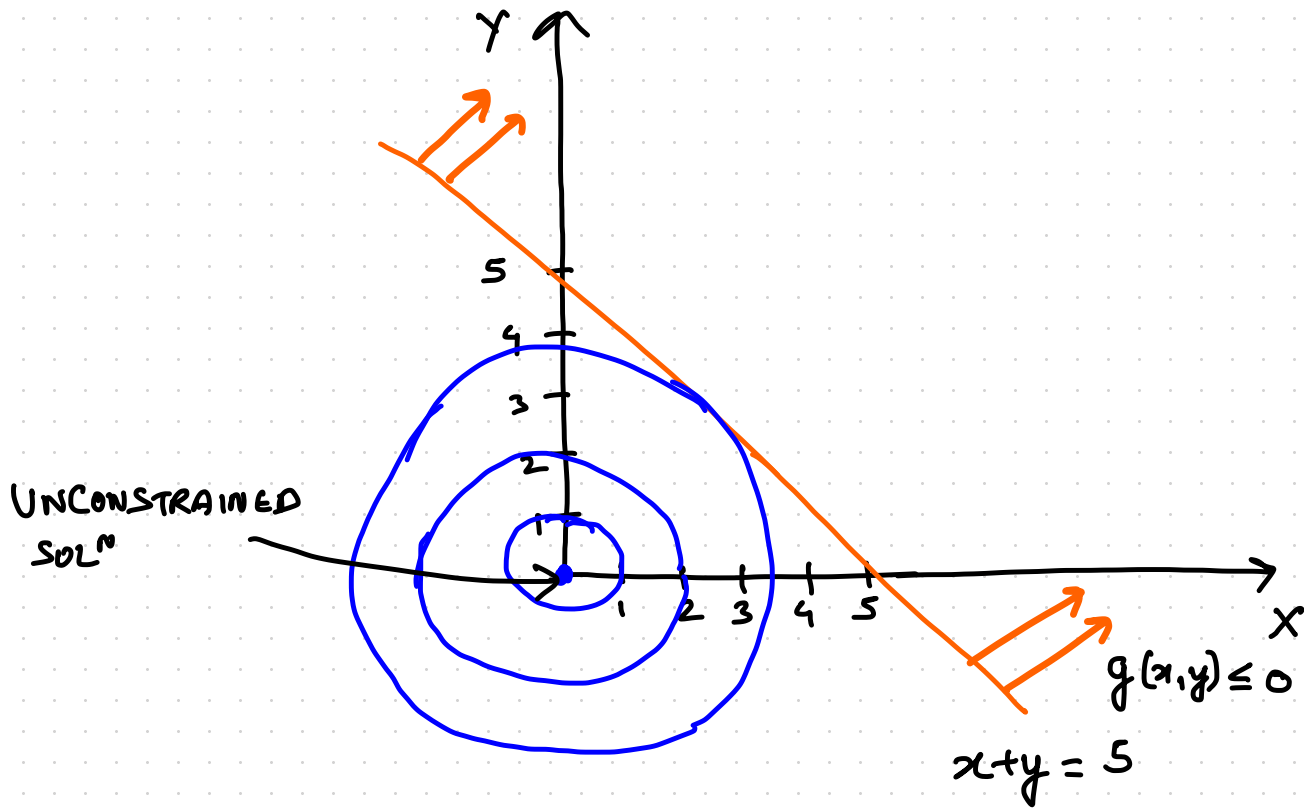
$$\text{Minimize } f(x, y) = x^2 + y^2$$

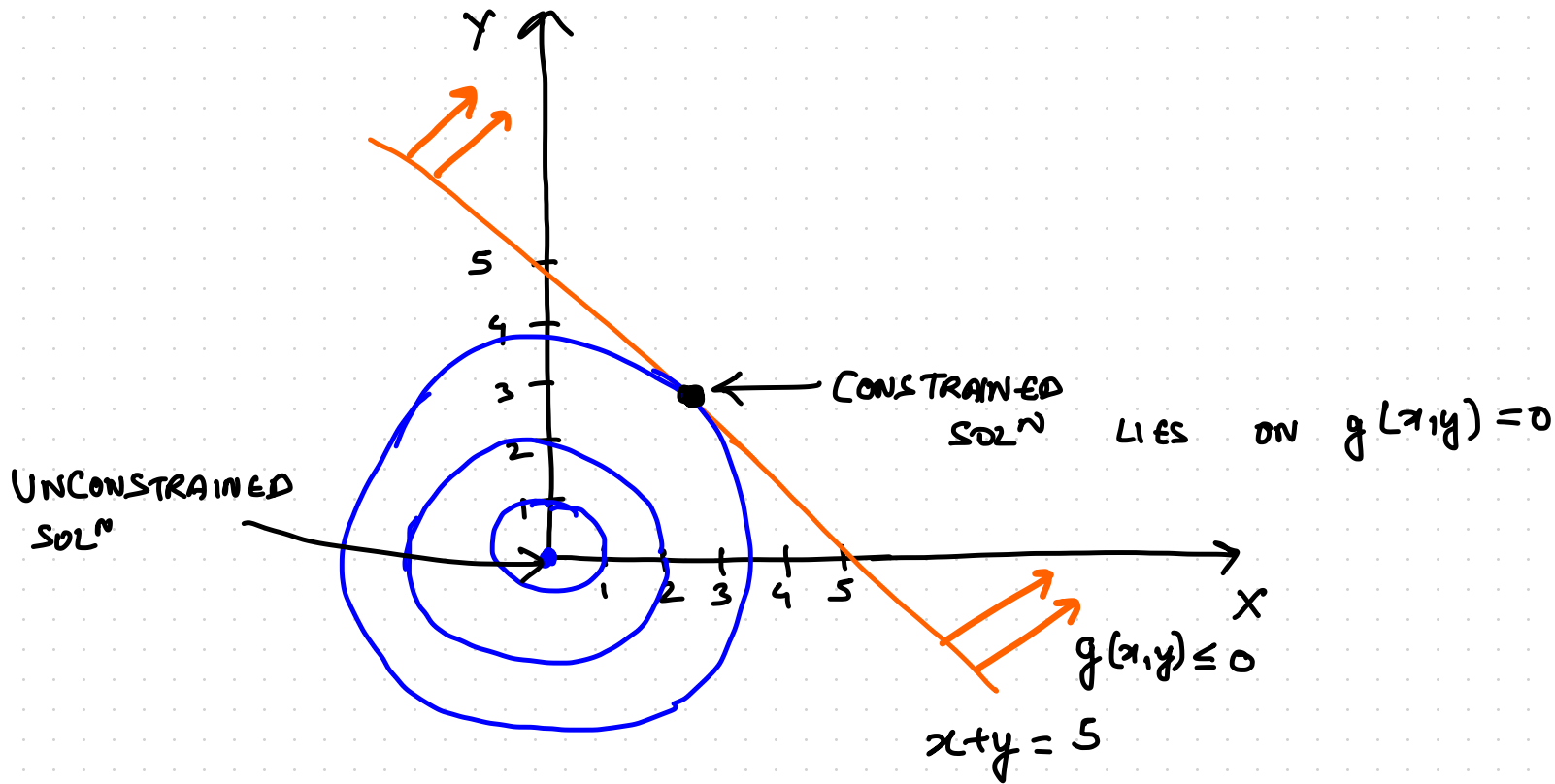
$$\text{s.t. } x + y \geq 5$$

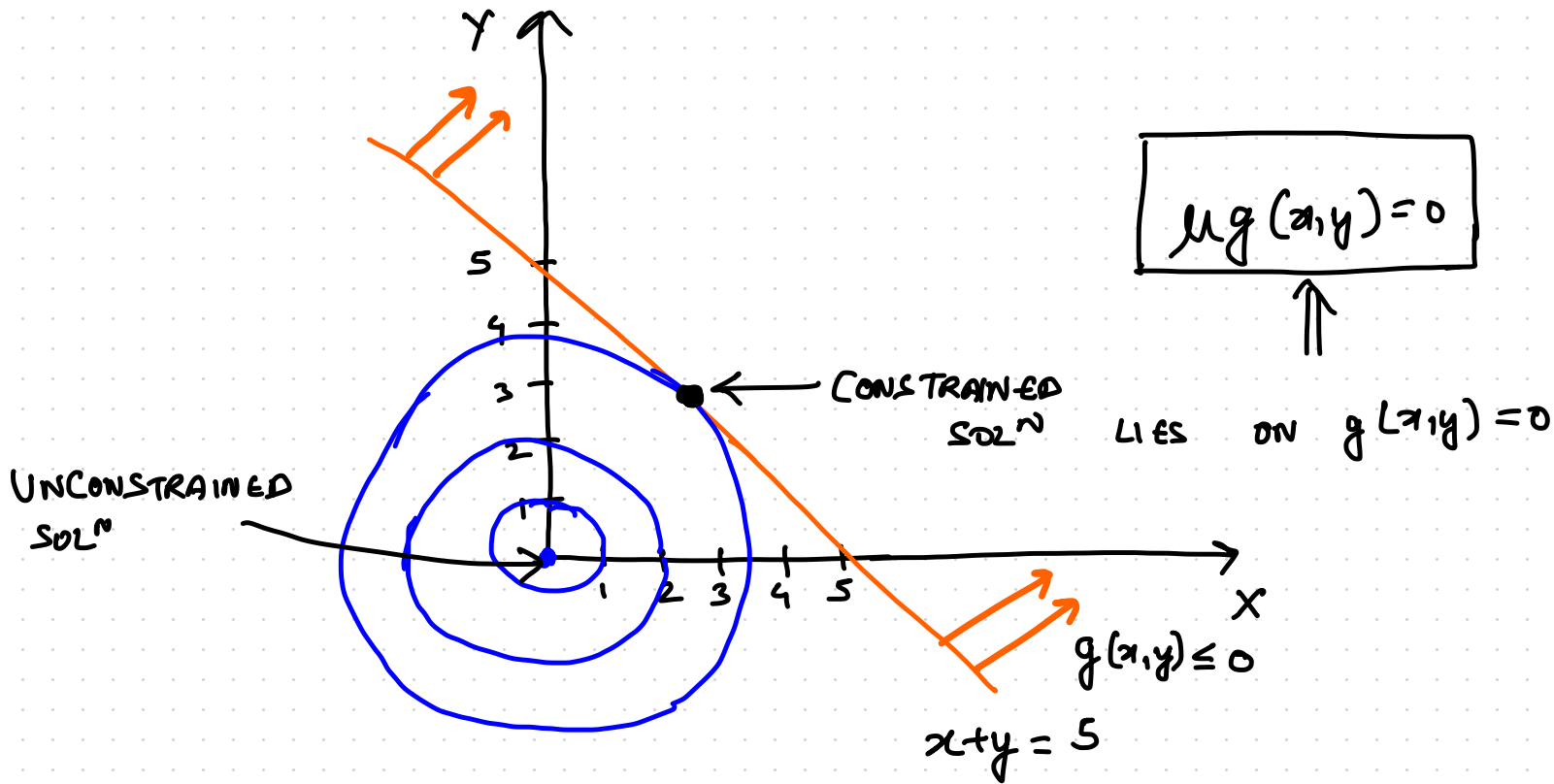
$$f(x, y) = x^2 + y^2$$

$$g(x, y) = -x - y + 5 \leq 0$$



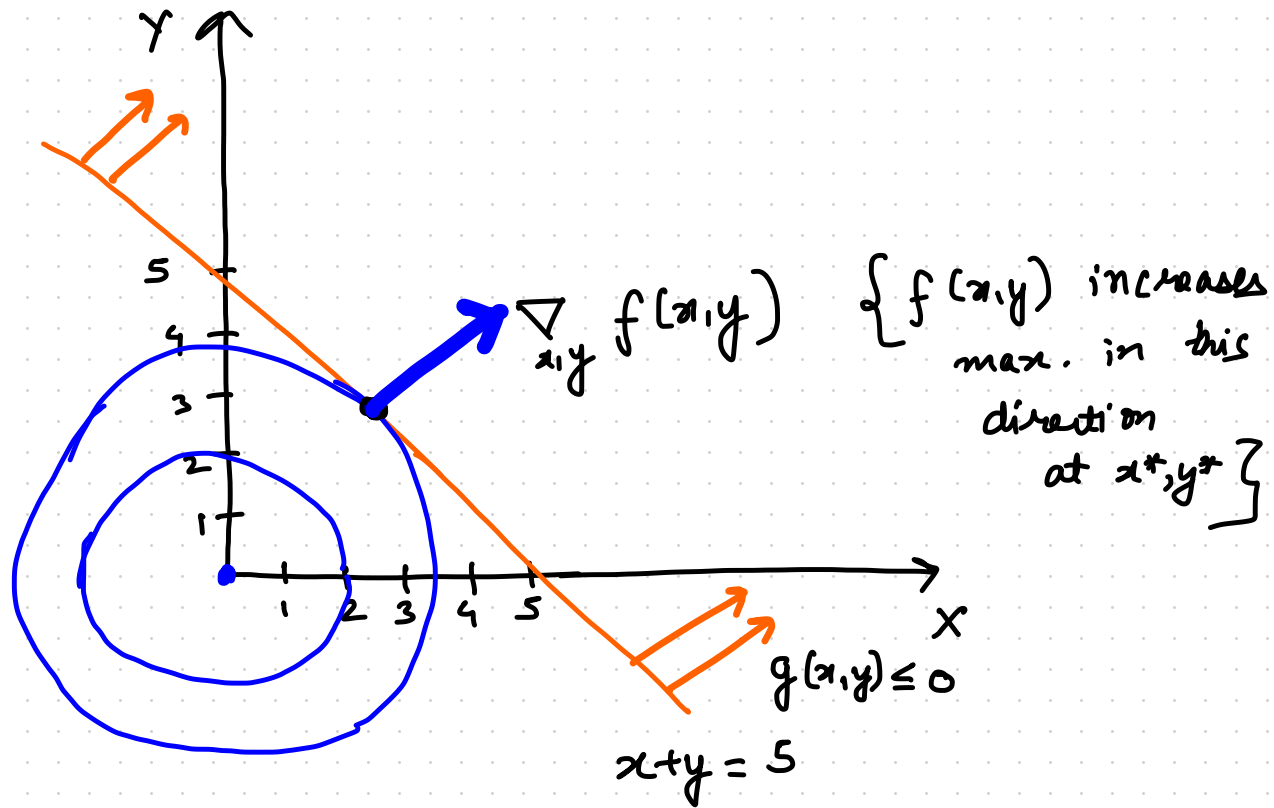


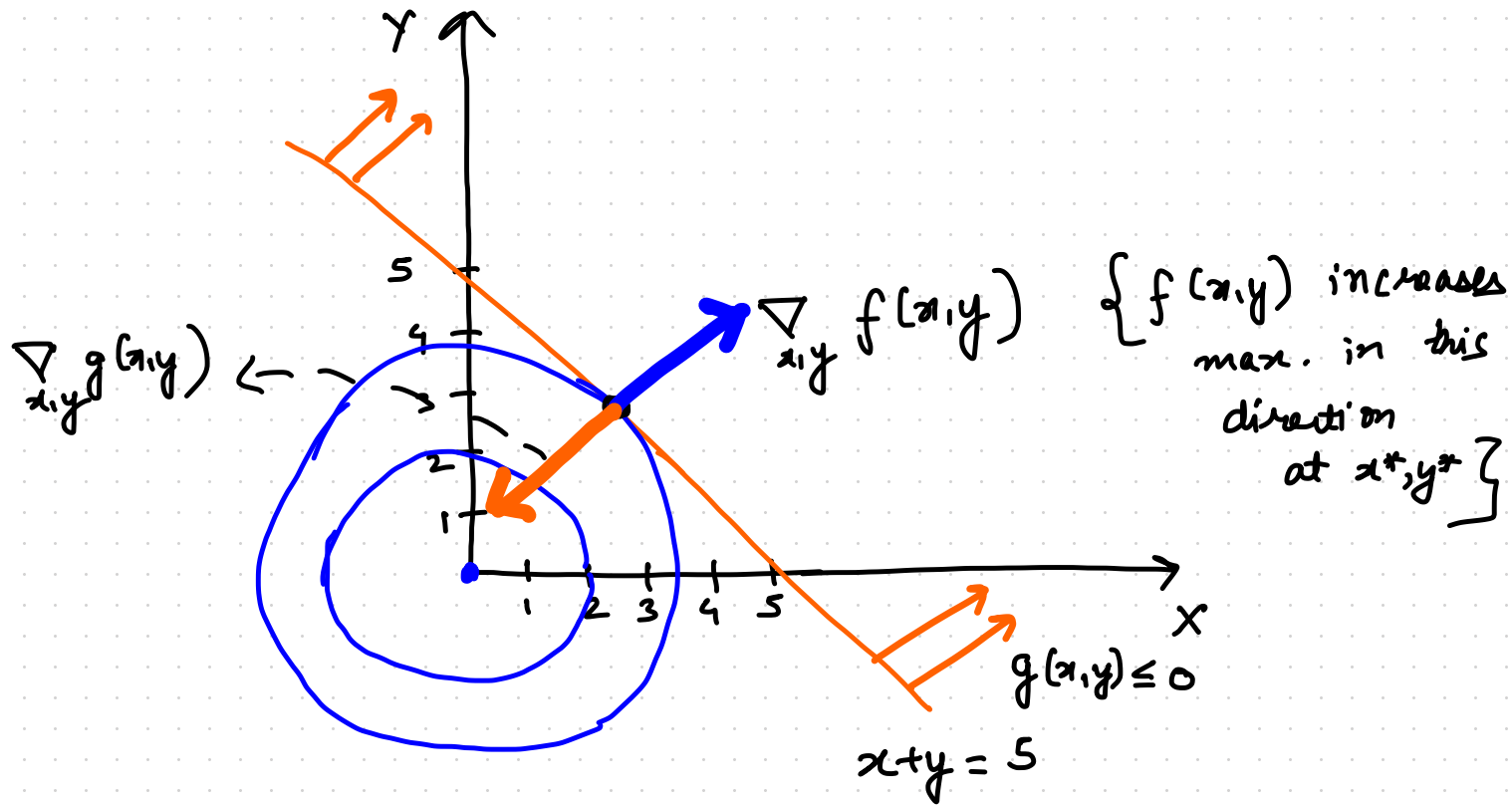




WHY $\mu_i \geq 0 \quad \forall i$

CONSIDER CASE WHEN $\mu \neq 0$





$\nabla f(x,y)$ is in
 opp. dirⁿ as
 $\nabla_{x,y} g(x,y)$

