- Consider the function $f : \mathbb{R} \to \mathbb{R}$ with $f(x) = x^2$, which we can represent as a relation
$$f = \{(x, x^2) : x \in \mathbb{R}\} \subseteq \mathbb{R}^2.$$
- We have the conjugate:
$$f^* = \{(x^2, x) : x \in \mathbb{R}\},$$
or
$$\{(y, \pm\sqrt{y}) : y \in \mathbb{R}\}.$$