Maximum Likelihood Estimator

Let $\mathbf{y} = (\mathbf{x}, \mathbf{z})$ be some random variable and $f(\mathbf{y})$ it's pdf and Θ the set of all possible parameters for the distribution of $\mathbf{y}$. The likelihood answers the question: Given a specific θ how likely is it to observe $\mathbf{y}$. Then θ^* maximized the likelihood.

$$\theta^* = \arg\max_{\theta \in \Theta} f(\mathbf{y}|\theta) \tag{1}$$