Exercise Number: 3.6.1

1. $\mathcal{F}$ is a collection of subsets of Ω.
2. $\mathbb{P}(A)$ is a well-defined element of $\mathbb{R}$ provided that A is an element of $\mathcal{F}$.
3. $\{X \leq 5\}$ is shorthand notation for the particular subset of Ω which is defined by: $\{\omega \in \Omega \mid X(\omega) \leq 5\}$.
4. If S is a subset of $\mathbb{R}$, then $\{X \in S\}$ is a subset of Ω.
5. If S is a Borel subset of $\mathbb{R}$, then $\{X \in S\}$ must be an element of $\mathcal{F}$.