Q1: By monotonicity, it is sufficient to show that

$$m^*(E) \geq \inf\Big\{\sum_{n=1}^{\infty} m^*(B_i) : B_i \text{ ball, } E \subset \bigcup_{i=1}^{\infty} B_i\Big\}.$$

Furthermore, it is sufficient to show that this inequality holds on open sets by Folland Theorem 2.40. Let U be some open set with finite measure. Take an open covering $\{B_i\}$ of U by balls such that $B_i \subset U$ for each i. Define the collection of balls $\mathcal{C}$ to be the set of all balls that are contained in some B_i. This is going to be a Vitali covering. By Vitali's Covering theorem, for all $\varepsilon > 0$ there exists a finite collection $\{B_j\}_{j=1}^N$ with

$$m(U \setminus \bigcup_{j=1}^{N} B_j) < \varepsilon\,.$$

We now claim that $U \subset \bigcup_{j=1}^N \overline{B_j}$. If not, then there is some $x \in E \setminus \bigcup_{j=1}^N \overline{B_j}$. Elementary toplogy tells us that $E \setminus \bigcup_{j=1}^N \overline{B_j}$ is open, hence we can find some ball $B_x \ni x$. This is a contradiction to the Vitali covering theorem, since B_x can not have positive measure. The last claim we make is that for any open ball $m(B) = m(\overline{B})$. Since any $\overline{B}$ is the intersection of open balls containing it, downward measure continuity implies that the measures are equal.