1. (2 pts.) How is the Lebesgue outer measure of a subset $E$ of the real line defined in terms of the length of an interval $l(I)$?

2. (2 pts.) How do we define the measurability of a subset $E$ of the real line?

3. (2 pts.) Suppose that $A$ is a subset of the real line. What does it mean to say a function $f:A \to \mathbb{R}$ is measurable?

4. (2 pts.) Does the existence of a non-measurable set $P$ imply there are subsets $A$, $B$, and $C$, of the real line with $A = B \cup C$, $B \cap C = \emptyset$, and $m'(A) < m'(B) + m'(C)$? Explain.

5. (2 pts.) What does it mean to say something is true almost everywhere?