Math 17A
Kouba
Mean Value Theorem-- An Application

Let \( s(t) \) be the total number of miles that you have driven on Interstate 80 from Davis to San Francisco after \( t \) hours of driving. Assume that \( s(1/3) = 10 \) miles and \( s(1.2) = 82 \) miles. At a checkpoint along the way you proudly admit these mathematical facts to a busy highway patrol officer, who, while a student at UC Davis, took a Math 17A course. The officer makes a few quick calculations, smiles, mumbles something about the Mean Value Theorem, then politely writes you a traffic ticket. Explain why. (You may assume that the distance function \( s(t) \) is a differentiable one.)