ASTR 680 Practice questions for lecture 5: General Relativity

1. Electromagnetism can be phrased in a covariant way. As part of this formulation, we introduce an antisymmetric, rank-2 tensor $\mathbf{F}$. For such a tensor, find three associated scalars. Look up the components of $\mathbf{F}$ (as measured in a given frame, and in terms of the electric field $\mathbf{E}$ and the magnetic field $\mathbf{B}$), and determine what conserved quantities are represented by these scalars.