Solve the following problems:

- Problem 13.2 It helps to keep in mind the equation that governs the magnetic vector potential, i.e.,
  \[ \nabla^2 A_s + \beta^2 A_s = -\mu J. \]
  Also, keep in mind that where you are interested in the fields is away from the source. Hence, away from the source, this equation reduces to
  \[ \nabla^2 A_s + \beta^2 A_s = 0. \]

- Problem 13.3

- Problem 13.5

- Problem 13.7 Provide two solutions: One that considers the complete impedance that includes the reactive component \( X_{\text{in}} \) of a true half-wave antenna, and another solution that has a reactive component of zero (so that \( Z_{\text{in}} = R_{\text{in}} \)).