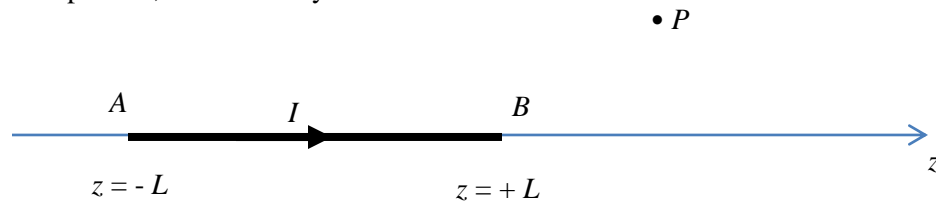


Study section 5.4 and Example 5.11, then answer the following questions.

1. Explain in your own words: what is the magnetic vector potential and why is it useful? I'm looking for a quality answer here—a few sentences of clear insight.
2. Explain why we are able to choose the divergence of the vector potential to be zero—again, give a few sentences which clearly address this question in depth.
3. Consider a wire of length $2L$ carrying current I from point A to point B . What is the direction of the vector potential at point P , and how do you know?



4. Now work out the integral and determine the vector potential at point P . You may use a symbolic integrator to evaluate the integral, but you must show all your work setting up the integral.