I Practice Problems: Integration for Electric Fields and Potential

Problem 1: Using integration, determine the electric field at the point P ($\vec{E}_p$) in Fig. 1 if the bar of charge has a charge per unit length (λ).

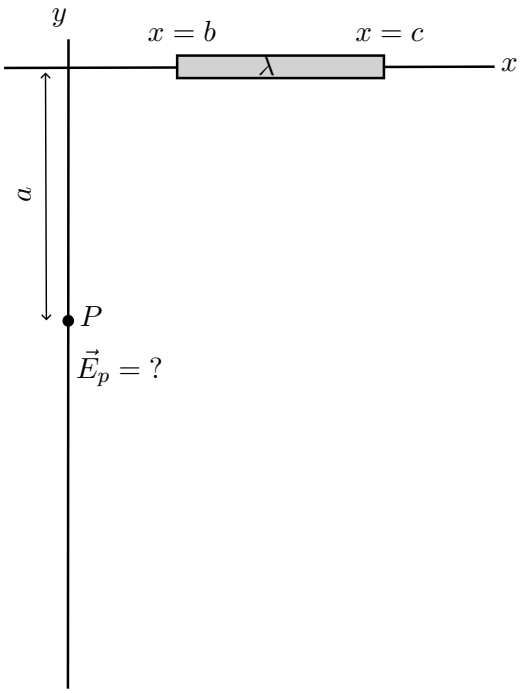

Figure 1: Electric Field of a bar of charge.

Problem 2: Using integration, determine the electric field and electric potential at the origin O ($\vec{E}_p$) of the semi-circle of charge shown in Fig. 2.

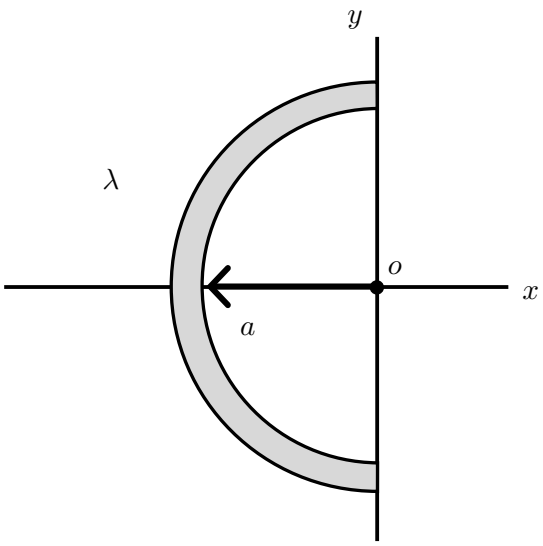

Figure 2: Electric Field of a semi-circle.

Problem 3: Using integration, determine the potential of the line of charge in Fig. 3 at points P_1 and P_2. (**Be wary of your substitutions!!**)

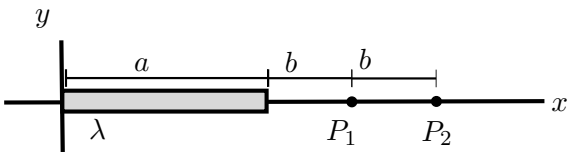

Figure 3: Electric potential for a bar charge.

What are your major takeaways/things that you want to remember?