



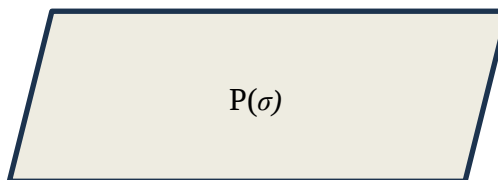
Exercise 1:

Using Gauss' theorem, determine the electrostatic field E and the potential V created by a straight wire of infinite length charged with a positive constant linear density λ .



Exercise 2:

- 1) Calculate the electric field E created at a point M located outside an infinite plane (P) of density uniform σ ($\sigma > 0$).
- 2) Deduce the field E' created in M by an infinite plane (P') perpendicular to (P) of density uniform 2σ
- 3) Calculate the resulting field E at this point.



Exercise 3:

A sphere with center O and radius R is uniformly charged throughout its volume with a constant and positive volume density ρ

- 1) Using Gauss' theorem, calculate the electrostatic field at a point M located at inside and outside the sphere
- 2) Deduce the potential $V(r)$ knowing that $V(r)=0$ when r tends to infinity

