Bayesian Classification of Three-class 1D Data Tutorial Exercise

Consider three populations $\Omega_1, \Omega_2, \Omega_3$ having the probability density functions seen in Figure 1. Find the Bayes decision rules considering $L_{ii} = 0, L_{ij} = L$ and $p(\Omega_1) = p(\Omega_2) = p(\Omega_3)$. What is the possibility of a wrong decision p_e?
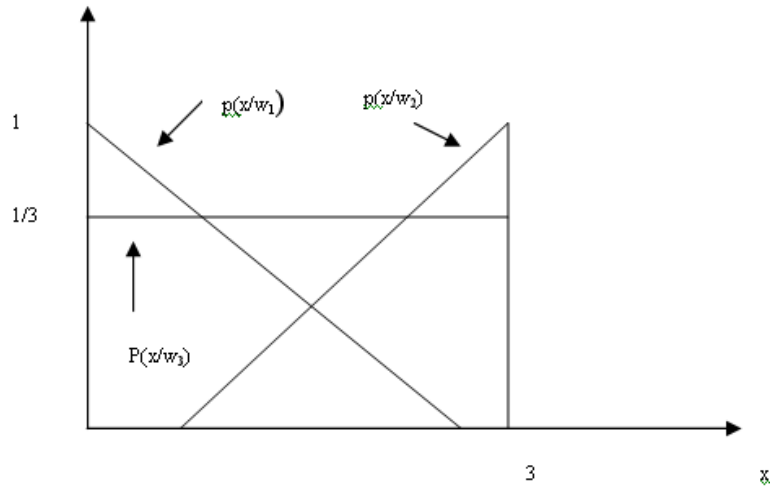

Figure 1: Probability density functions of $\Omega_1, \Omega_2, \Omega_3$.