$$\frac{\partial \mathcal{L}(w, w_0, \xi, \lambda, \mu)}{\partial w} = 0 \quad \Longrightarrow \quad w = \sum_{i=1}^{N} \lambda_i y_i x_i \tag{1}$$

$$\frac{\partial \mathcal{L}(w, w_0, \xi, \lambda, \mu)}{\partial w_0} = 0 \quad \Longrightarrow \quad \sum_{i=1}^{N} \lambda_i y_i = 0 \tag{2}$$

$$\frac{\partial \mathcal{L}(w, w_0, \xi, \lambda, \mu)}{\partial \xi_i} = 0 \quad \Longrightarrow \quad C - \mu_i - \lambda_i = 0 \tag{3}$$

Putting (4), (5) and (6) into $\mathcal{L}(w, w_0, \xi, \lambda, \mu)$, we have

$$\begin{aligned}
\mathcal{L}(\lambda, \xi) &= \frac{1}{2}||w||^2 + C\sum_{i=1}^{N} \xi_i - \sum_{i=1}^{N} \mu_i \xi_i - \sum_{i=1}^{N} \lambda_i (y_i(w^T x_i + w_0) - 1 + \xi_i) && (4) \\
&= \frac{1}{2}\sum_{i=1}^{N}\sum_{j=1}^{N} \lambda_i \lambda_j y_i y_j x_i^T x_j + C\sum_{i=1}^{N} \xi_i - \sum_{i=1}^{N} \mu_i \xi_i - \sum_{i=1}^{N} \lambda_i y_i w^T x_i - \sum_{i=1}^{N} \lambda_i y_i w_0 + \sum_{i=1}^{N} \lambda_i - \sum_{i=1}^{N} \lambda_i \xi_i && (5) \\
&= \frac{1}{2}\sum_{i=1}^{N}\sum_{j=1}^{N} \lambda_i \lambda_j y_i y_j x_i^T x_j + C\sum_{i=1}^{N} \xi_i - \sum_{i=1}^{N} \mu_i \xi_i - \sum_{i=1}^{N} \lambda_i y_i \left(\sum_{j=1}^{N} \lambda_j y_j x_j^T\right) x_i - \sum_{i=1}^{N} \lambda_i y_i w_0 + \sum_{i=1}^{N} \lambda_i - && (6) \\
&= \sum_{i=1}^{N} \lambda_i - \frac{1}{2}\sum_{i=1}^{N}\sum_{j=1}^{N} \lambda_i \lambda_j y_i y_j x_i^T x_j. && (7)
\end{aligned}$$