c) $\hat{L}_R(\theta) = \sum_{i=1}^{d} \left[\frac{1}{2} H_{ii} (\theta_i - \theta_i^*)^2 + \alpha |\theta_i| \right]$

->

$$\theta_i = \max \left\{ |\theta_i^*| - \frac{\alpha}{H_{i,i}}, 0 \right\} * sign\{\theta_i^*\}$$

The optimal solution is $\theta_i = 0$, which happens when $|\theta_i^*| < 0$

This means that L_1 reg doesn't punish weights that are close to the optimal solution.