ii) $f(x) = \frac{1}{2} x^T Q x + b^T x + c$

$\nabla f(x) = Qx + b$ $\qquad \|\nabla f(x) - \nabla f(y)\| =$

$= \|(Qx + b) - (Qy + b)\| = \|Qx - Qy\| =$

$= \|Q(x-y)\| \underset{\text{lema 0.1.}}{\leq} \|Q\| \cdot \|(x-y)\| = L \cdot \|(x-y)\|$

L-LIPSCHITZ GRADIENT $\Rightarrow$ L-smooth

iii) $\frac{\partial f(b, w)}{\partial b} = \sum_{i=1}^{n} (2b + w^T x_{i\cdot} - y_i) = \sum_{i}^{n} 2b + w^T \sum_{i=1}^{n} x_{i\cdot}$

$\sum_{i=1}^{n} y_i = 2nb + w^T \cdot 0 - 0 = 2nb$

$2nb^* = 0$

$b^* = 0$