Date: / /

Iteration 1

$y = mx + b = wx + b$

$m = -1$ Learning Rate(α) = 0.1

$b = 1$ $n = 2$

Data Points $(1,3)(3,6) = (x_1, y_1), (x_2, y_2)$

① $\hat{y}_1 = mx_1 + b = (-1)1 + 1 = 0$ $\underline{y_1 = 0}$

$y_2 = mx_2 + b = (-1)3 + 1 = -2$ $\underline{y_2 = -2}$

Gradient $\partial J / \partial m$

Formula $\partial J / \partial m = \frac{-2}{n} \Sigma (y_i - \hat{y}_i) x_i$

$-1 \times (3-0)1 + (6-(-2))3 = -27$

$\partial J / \partial b$

Formula $\partial J / \partial b = \frac{-2}{n} \Sigma (y_i - \hat{y}_i)$

$-1 \times (3-0) + 6(2) = -11$

M_{new} & b_{new}

$M_{new} = M_{old} - \alpha (\partial J / \partial m)$

$= -1 - 0.1(-27) = 1.7$

$b_{new} = b_{old} - \alpha (\partial J / \partial b)$

$= 1 - 0.1(-11) = 2.1$

$\underline{M_{new} = 1.7}$ $\underline{b_{new} = 2.1}$