Problem 1:

$$a_1 = x_0 w_1 = 2(-1) = -2$$
$$a_2 = x_1 w_2 = 3(-2) = -6$$
$$a_3 = x_2 w_3 = 7(-6) = -42$$

$$e = t - a_3 = -40 - (-42) = 2$$

$$\delta_3 = -ef'(a_3) = -2 * 1 = -2$$
$$\delta_2 = \delta_3 w_3 f'(a_2) = -2(7)(1) = -14$$
$$\delta_1 = \delta_2 w_2 f'(a_1) = -14(3)(1) = -42$$

$$\frac{\delta L}{\delta w_3} = \delta_3 x_2 = -2(-6) = 12$$
$$\frac{\delta L}{\delta w_2} = \delta_2 x_1 = (-14)(-2) = 28$$
$$\frac{\delta L}{\delta w_1} = \delta_1 x_0 = -42(2) = -84$$

$$\boldsymbol{\frac{\delta L}{\delta w_3} = 12}, \qquad \boldsymbol{\frac{\delta L}{\delta w_2} = 28}, \qquad \boldsymbol{\frac{\delta L}{\delta w_1} = -84}$$