Funcția de cost logistică

pentru setul de date de la pr. 4.2 (cea cu ciuperci)

cf. formulei (177) de la pr 2.13.c

$$J(w) \overset{(177)}{=} \underbrace{\frac{1}{m}}_{8 \text{ în pr. 4.2}} \sum_{i=1}^{m} \ln(1 + \exp(-\underbrace{y^{(i)}}_{\in\{-1,+1\}} w \cdot x^{(i)}))$$

$$= \frac{1}{8}[\ln(1+\exp(-(w_1+w_0))) + \quad // A$$

$$+ \ln(1+\exp(-(w_1+w_3+w_0))) + \quad // B$$

$$+ \ln(1+\exp(-(w_2+w_4+w_0))) + \quad // C$$

$$+ \ln(1+\exp(w_4+w_0)) + \quad // D$$

$$+ \ln(1+\exp(w_1+w_2+w_3+w_0)) \quad // E$$

$$+ \ln(1+\exp(w_1+w_3+w_4+w_0)) \quad // F$$

$$+ \ln(1+\exp(w_1+w_4+w_0)) \quad // G$$

$$+ \ln(1+\exp(w_2+w_0))] \quad // H$$

LC:

Obs: la pr 6.14 nu apare factorul (ANN)

$$w \leftarrow w - \eta \underbrace{\nabla_w J(w)}$$

- calculat pe verso, cf pr 6.14.c

$$\nabla_w J(w) =$$

$$= -\frac{1}{m} \sum_{i=1}^{m} (1 - \sigma(y^{(i)} w \cdot x^{(i)})) \, y^{(i)} x^{(i)}$$

$y^{(i)} \in \{-1, 1\}$