

# Machine Learning

## HW 2 - Linear Regression Spring 2025

1. Consider the following supervised *training* dataset:

$$X = \begin{bmatrix} -2 \\ -5 \\ -3 \end{bmatrix}, Y = \begin{bmatrix} 1 \\ -4 \\ 1 \end{bmatrix}$$

- (a) Compute the coefficients for closed-form linear regression using least squares estimate (LSE). Show your work and remember to add a bias feature. (6pts).
- (b) Using your learned model in the previous part, what are your predictions,  $\hat{Y}$ , for the training data (2pts)?
- (c) What is the RMSE and SMAPE for this training set based on the model you learned in the previous part (2pts)? You might find different equations from SMAPE online, but use the one provided in the slides.