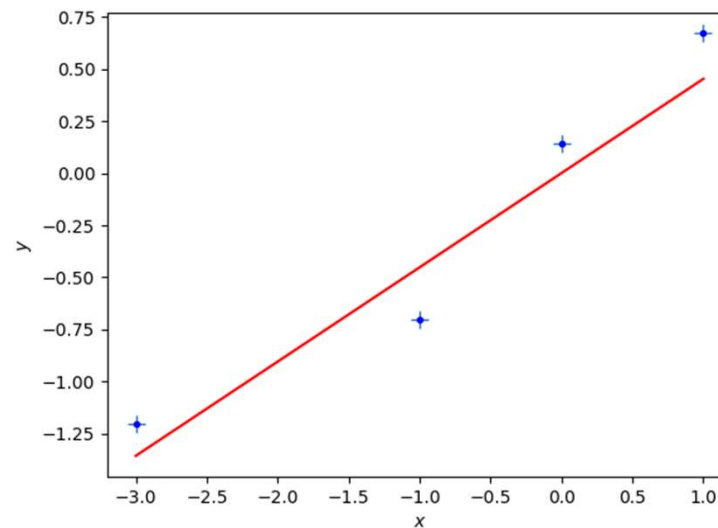


Linear Regression – WP task 1

1. Find and draw the equation for the regression line that best fits the following dataset: $\{X, Y\} = \{(-3, -1.2), (-1, -0.7), (0, 0.14), (1, 0.67)\}$



Linear Regression – WP task 2

2. Generalize the concept of (1) for more than 1 input variable e.g., 14 variables in case of Boston housing dataset.

- **2.1.** Write a multivariable regression equation
- **2.2.** Explain (2.1) in terms of
 - i. Dependent and independent variables (discussed in lecture 1)
 - ii. Multivariable and their weights (significance)
 - iii. Slopes
 - iv. Intercept

Linear Regression – WP task 3

3. Coding task: Prediction model for the house prices in Boston, MA

Hint:

- $m = \frac{\sum X - \bar{X}Y}{(\sum X)^2 - \bar{X}^2} = \frac{X^T Y}{X^T X} = (X^T X)^{-1} \cdot X^T Y$
- m is a vector
- Use `np.linalg` for calculating the inverse (if Python is the language of programming)

Also, explain which variable has the most weight (significance) and why?