

Name:

## Short Quiz 1A

8 September 2025

**Question 1:** Write the formula of the empirical risk of a predictor  $f$  for the quadratic cost, with data  $(x_1, y_1), \dots, (x_n, y_n)$ .

**Answer:**

$$\hat{R}_n(f) = \frac{1}{2n} \sum_{i=1}^n (y_i - f(x_i))^2$$

**Question 2:** What is generalization?

**Answer:** Generalization is the ability of a predictor to perform well on data it has not been trained on.

**Question 3:** True or false? Circle the right answer. An empirical risk minimizer  $\hat{f}$ ...

- T      F      always has good generalization properties
- T      F      is not necessarily unique
- T      F      depends on the cost we choose for computing the empirical risk

**Answer:** False — True — True