

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} ...

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|---|---|--|
| 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