Surrogate error, amortized cost and training-step bias — review sheet

Use this after attempting the worked examples and practice. Explain each claim in words before calculating.

Key ideas

- A useful claim includes regime, observable and acceptance threshold.
- Setup and per-query cost answer different questions.
- Reference accuracy must be checked independently.
- A learned generator can depend on the training discretization.
- A computational benchmark is not biological validation.

Common errors and repairs

Reporting only a favorable warm inference time. State the boundary and separately account for setup and geometry costs.

Assuming a higher-order integrator always improves target accuracy. Test the learned equation and training/inference discretizations together.

Treating reference labels as error-free reality. Separate reference verification from model validation.

Retrieve without your notes

- When does a positive setup break-even threshold exist?
- What can a smaller step converge toward?

Readiness check

- Separate surrogate error, reference-solver error and biological validation evidence.
- Measure query costs with an explicit timing boundary and compute a setup break-even condition.
- Explain how a fitted generator can depend on its training time step.
- Design a falsifiable, bounded comparison with grouped test regimes and failure criteria.