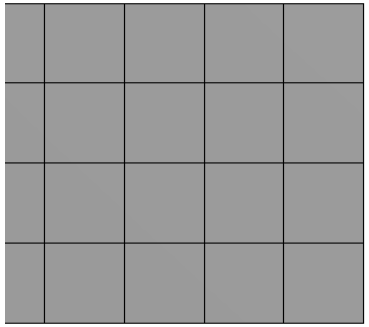
# Verification & Validation

- Verification: **Am I computing things right?**
  - Does my program have bugs?
  - Does my numerical simulation correspond to my mathematical/conceptual model?
  - Is the quality of my approximations and discretization sufficient? → **Today**

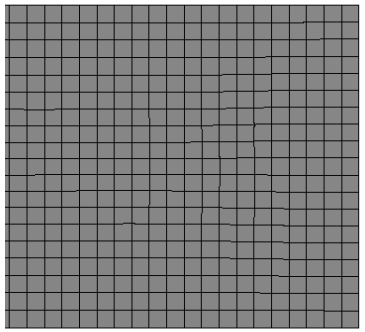
- Validation: **Am I computing the right thing?**
  - Is my model a sufficiently good representation of reality? → **Lab Report**
  - Is the underlying mathematical model/my theory good enough?

# Discretization in FEA

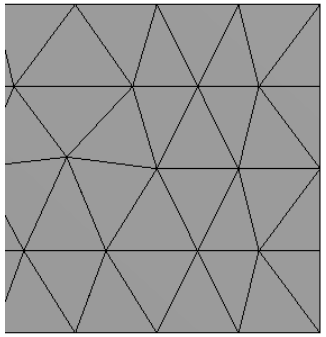
Resolution



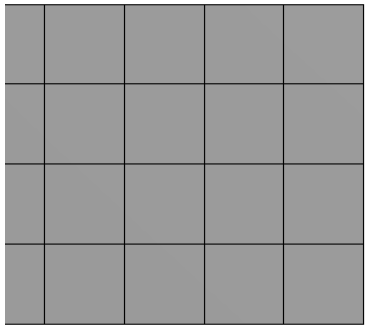
vs.



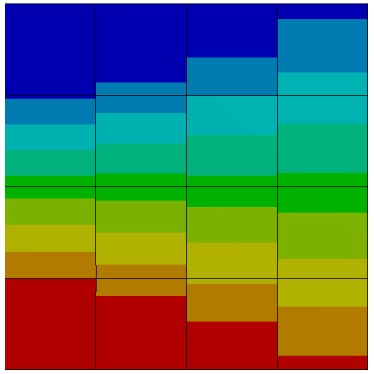
Element shape



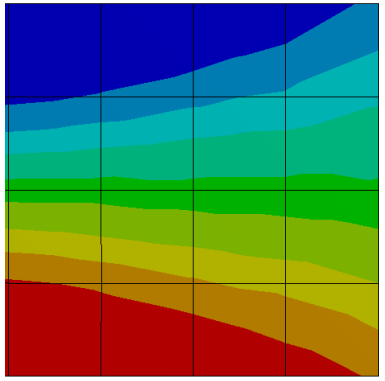
vs.



Interpolation ansatz
(= FE basis functions)



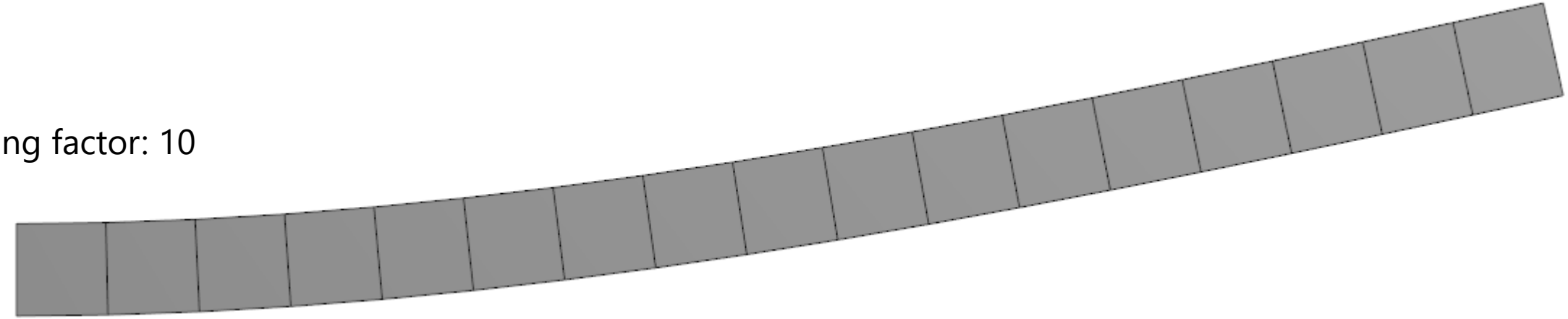
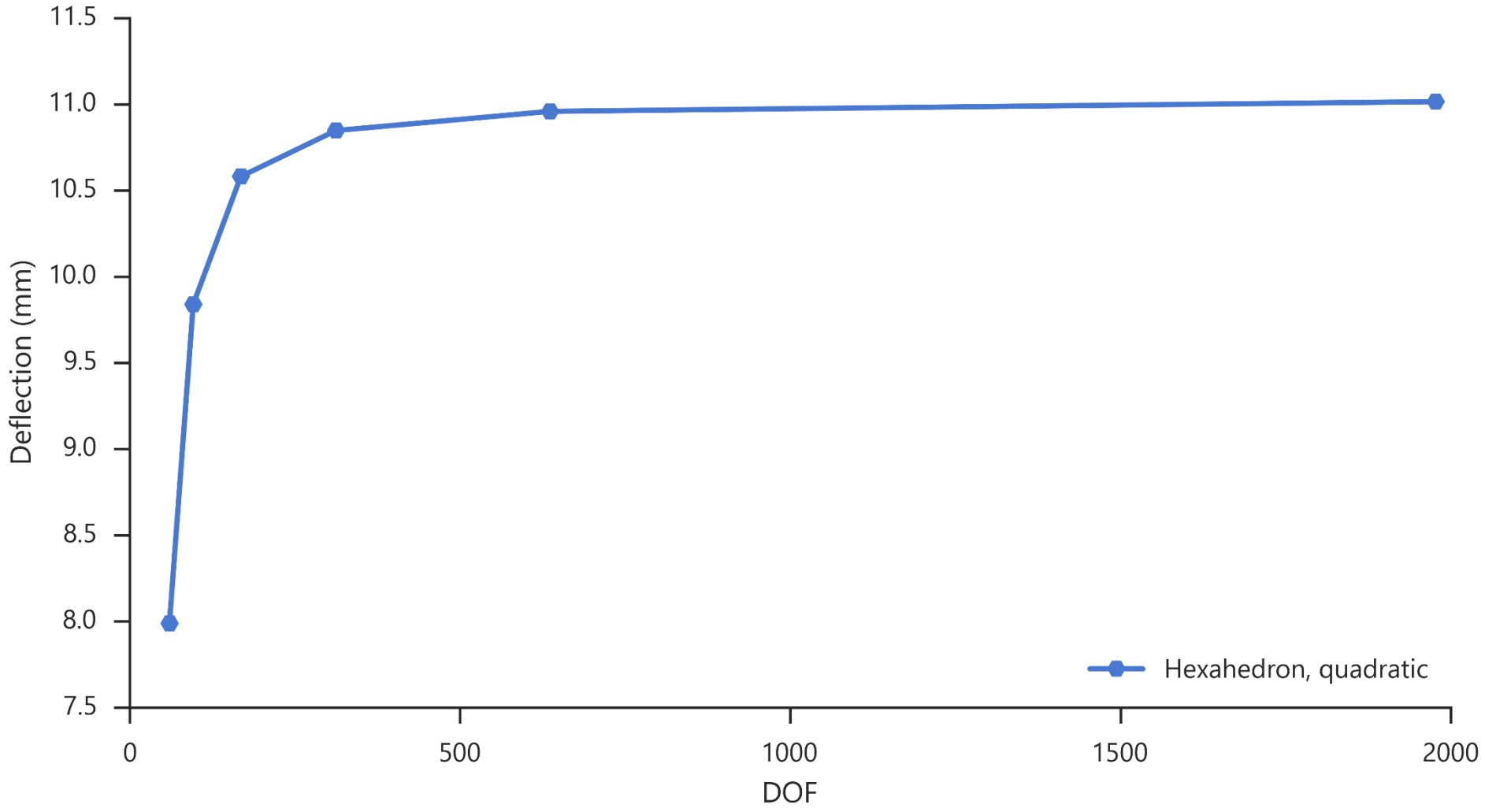
vs.



# Convergence Analysis

Scaling factor: **500**

Scaling factor: 10



# Convergence Analysis