

Homework: 4

Due October 20. Solve at least 4 of the problems below.

1. Trefethen 11.1
2. Trefethen 13.3
3. Trefethen 13.4
4. Prove that (13.7) in Trefethen is valid for complex arithmetic (all four arithmetic operations) with $|\epsilon|$ now bounded by a modest multiple of $\epsilon_{\text{machine}}$.
5. Prove that in IEEE binary floating point arithmetic $\text{sqrt}(x^2)$ returns x exactly.
6. Let a and b be positive IEEE binary floating point numbers such that $a < b < 2a$. Prove that $\text{fl}(b-a) = b-a$ exactly.