

we can compare w/ w/ maximum ... of
locate roots

File:

- coefficients can grow fast (try some eq.'s w/ Mathematica)
- One SS. per fixel?

numerical root finding

- to polish root
- to exploit coherence

Interval halving

- if we know there is one ^{isolated} root in $[a, b]$, we can use sign of $Q(t)$, split intervals
- very robust
- relatively slow

Newton's method

$$Q(t_i + \delta t) \approx Q(t_i) + \delta t \cdot \left. \frac{dQ}{dt} \right|_{t=t_i}$$

now if $t_i + \delta t$ is a root,

$$\text{then } \delta t = \frac{-Q(t_i)}{\left. \frac{dQ}{dt} \right|_{t=t_i}}$$

Iteration

$$t_{i+1} = t_i + \left[\frac{-Q(t_i)}{\left. \frac{dQ}{dt} \right|_{t=t_i}} \right]$$