fold stuff

hw04: conjugate gradient code

refresh polynomial error

refresh chebyshev

continue chebyshev

* this idea of evenly-spaced vs differently-spaced will show up again. low-hanging fruit?

cubic splines

* use case for gauss elimination
* it seems sort of engineering-y when this is (...) mostly a math class

chicken, egg (its not like its stated that its a chicken egg ~ fermi): wanted a nice curve, used knowledge of derivatives to piece it together as a method vs eyeballing it.

think of it also like this:

1. wanted to find some root
   1. monkeyed with f(x) ⇒ fpi: x = f(x) ↦ xn+1 = xn - g(x)
   2. systems of equations
2. moved on from zero to other points ≡ polynomial interpolation (hw04)
   1. monkeyed with f(x) ⇒ fpi: x = f(x) ↦ xn+1 = xn - g(x)
   2. systems of equations
3. got over (~math therapy) what xi had to be ⇒ differently located
   1. non-sequential
   2. non-equally spaced
   3. differently spaced ~ chebyshev
4. splines

while its a break from continuity and thats not really getting addressed bc continuity applies within each segment. i mean, thats just a bunch of mini-mes. but what weve also introduced here is partitions.

the haunting (of previous lectures) continues. and thats why i dont like cumulative tests for this subject. its not a history class, you know.

also, when you see natural splines, how thats orchestrated, itll be similar to problems later in this semester.

cubic: n-1 equations connecting n points, 3 unknowns (b,c,d; a=y) per equation. the equations themselves are 1 set of n-1, so you need to find 2\*(n-1) other conditions. unknowns and equations, you know where thats going, right?

the middle points = 2 properites @ (n-2) points ⇒ for n=3, youre missing two conditions ⇒ the endpoints, ding ding ding.

bezier splines: 2 videos = LOL

(my fyi: next mondays quiz ~ proof if videos.)

TODO

* **extra credit** ab,av
* 2/29: standalone videos of all important theorems