Math 1210-2

Fri Sept 7

Webworks: assignment 2 is open ('til Fri Sept 14 @ midnight
assignment 3 will open at noon today ('til Monday Sept 17 @ midnight.)

- Finish Wednesday notes – page 3 trig identities
- Do text example 4, page 44:
  - The average temperature in St. Louis Missouri ranges from 37° F on Jan 15 to 89° F on July 15
  - The average daily temperatures in St. Louis roughly follow a sinusoidal curve.

Find parameters C, A, a, b to model the average temp at t months, with
t=0 → Jan 1
t=12 → Dec 31

$$T(t) = C + A\sin(a(t-b))$$

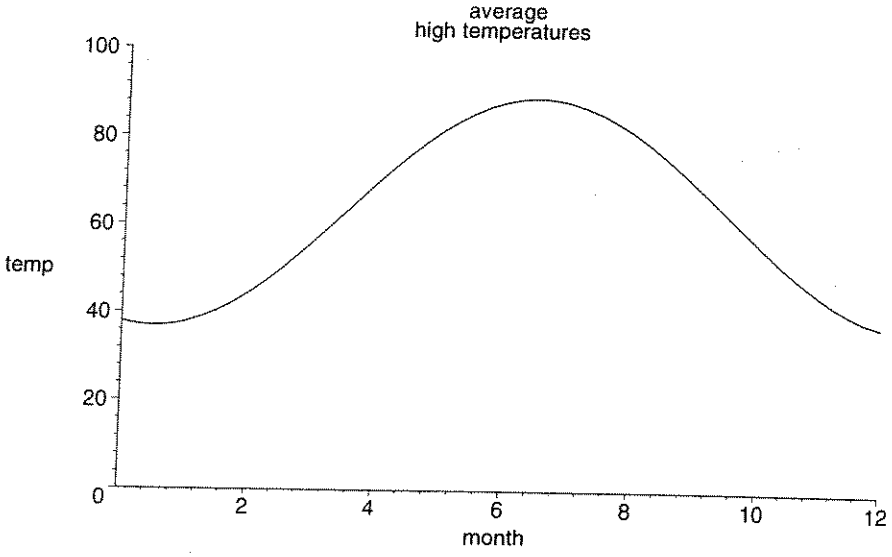
C: (average yearly temperature)

A: ("amplitude" # of temperature variations from average)

a: (called the "angular frequency", units are radians/time)
to find a use the fact that T(t) has minimal period = 12 months)

b: (called "phase", tells translation of ~~sin~~ sine curve to the right)

Note: Book compares models predicted May 15 average temp $T(4.5) \approx 76°$ with actual average of 75°.



ans: $T(t) = 63 + 26\sin\left(\frac{2\pi}{12}(t-7\frac{1}{2})\right)$