Possible timeline for first lecture

9/25/2006

Title: Coordinates and Distance

Main points: Notation, distance formula $d((a,b,c),(x,y,z)) = \sqrt{(x-a)^2 + (y-b)^2 + (z-c)^2} = r^2$ and completion of square.

- 1. Introduction (10 minutes)

    - Welcome and introduce yourself
    - introduce CA and refer to the last 5 minutes
    - name of CAs, refer to end of class
    - remind that all information is online

- 2. Coordinates (10 minutes)

    - coordinates in 1D,2D,3D: write P = (x,y,z)
    - have them see a coordinate system in space
    - mention coordinate axes, planes, quadrants and octants

- 3. Distance (10 minutes)

    - distance from origin
    - distance between two points (as application: compute diagonal of the lecture hall)
    - distance formula in space derived from Pythagoras

- 4. Spheres (10 minutes)

    - set of points with distance 1 from origin
    - set of points with distance r from point
    - find the center and radius of something like $x^2 + 2x + y^2 - 8y + z^2 - 10z = 0$.

- 5. Give word to CA (5-10 minutes)

    - CA finds recitation time distributes a sheet, which students fill out.