

# CMSI 371

## COMPUTER GRAPHICS

Spring 2008

### Assignment 0327

To reinforce some of the “math of space” material that we’ve covered, and also to serve as practice of sorts for those of you whose projects will have similar elements, we’ll do some math-and-programming work.

#### Not for Submission

- Read Chapter 4 in Angel, with an emphasis on Sections 4.1–4.5, for additional information and background on what we’ve covered so far. We’ll get to Sections 4.6–4.11 next, so there’s no harm in reading ahead if you’re interested.
- Appendices B and C are also useful for covering the pure mathematics in detail.

#### For Submission

Modify the Battleballs sample program (starter files have been committed to your repositories under */homework/cmsi371/battleballs*) as follows:

1. Change the battle room from the inside of a sphere to another volume of your choice (cube, rectangular prism, cylinder, etc.).
2. Modify *both* the way the room is drawn *and* the way the “battleballs” detect collisions against and bounce off the room’s walls.
3. Change the shape of the “battleballs” themselves, from spheres to some other shape of your choice. *Recommendation:* Implement a simple polygon mesh and represent your battleball as an instance of this implementation.
4. Modify the bounding spheres used for battleball collision detection so that they visually make sense for the new battleball shapes.

The vector library source code from Graphics Gems has been intentionally omitted from your repositories, so that you can have the experience of downloading these files yourself and integrating them into your process. The link to the repository is available on the course Web site.

Commit your code as a set of new revisions to */homework/cmsi371/battleballs*.