Project 3 : Modeling the Cones

It's probably easiest to model one (call it standard) cone (with apex at the origin and axis running along the z-axis), store it in a display list and then just call the display list for each site, putting the right translation matrix into the modelview matrix before.

To model the standard cone, use a triangle fan (see `man glBegin`). The first vertex is the apex, $(0, 0, 0)$. The other vertices (p_i shown below) could be regularly distributed samples on the circle that can be obtained by cutting the cone with a plane perpendicular to its axis (say, $z = 1$) have coordinates $(\cos(2\pi k/n), \sin(2\pi k/n), 1)$, where $k = 0, 1, 2, \ldots n$. It's easiest to put those points at infinity to cause OpenGL to draw unbounded cones. To do that, use `glVertex4*` rather than `glVertex3*` and specify zero homogenous (fourth) coordinate. In general, a vertex $(x, y, z, 0)$ will define a vertex at infinity in the direction of (x, y, z). Also, remember to close the fan: repeat the first vertex on the circle as the last vertex.