

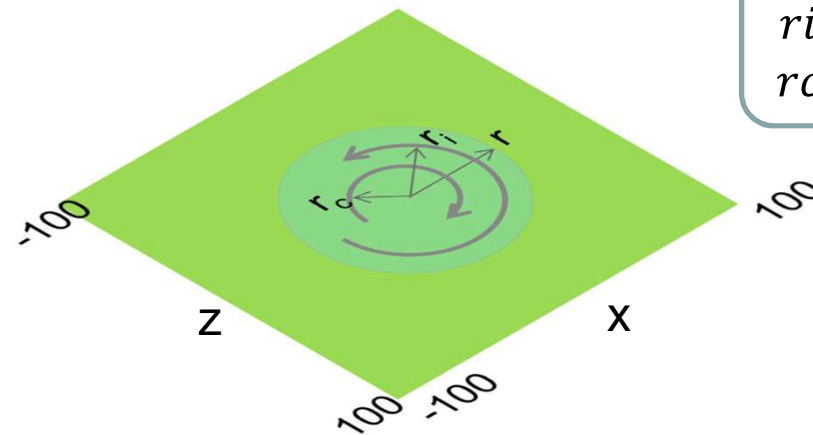
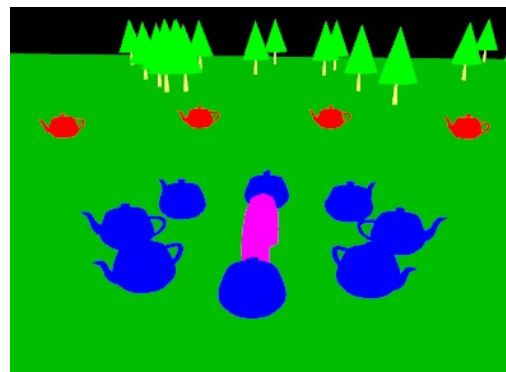
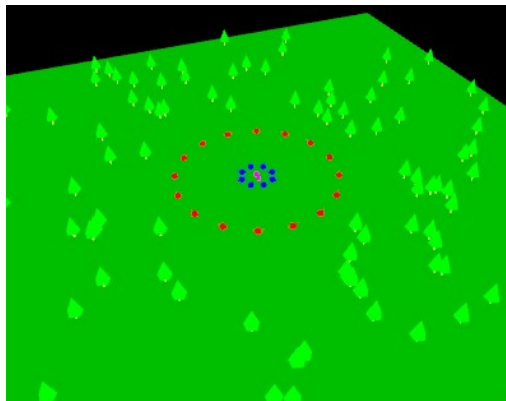


Geometric Transformations

Building a 3D World

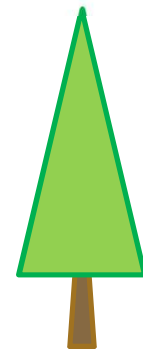


West World



$$\begin{aligned} r &= 50 \\ r_i &= 35 \\ r_c &= 15 \end{aligned}$$

$$\begin{aligned} x &= r \sin(\alpha) \\ z &= r \cos(\alpha) \end{aligned}$$





Required functions

```
(stdlib.h)
void srand(int seed); // start the random number sequence
int rand(void); // returns a number between 0 and RAND_MAX

void glTranslatef(float x, float y, float z);
void glRotatef(float ang, float x, float y, float z); // ang in degrees

void glPushMatrix(void);
void glPopMatrix(void);

void glutSolidCone(float baseRadius, float height, int slices, int stacks);
void glutSolidTorus(float innerRadius, float outerRadius, int sides, int rings);
void glutSolidTeapot(float dimensao);

glBegin(GL_TRIANGLES);
    glVertex3f(...);
    ...
glEnd();
```

