Lecture 2: Graphics Pipeline – Review Questions

- Describe the information that passes from the CPU to the GPU. From the GPU back to the CPU.

- Describe at least three ways to make the transfer of data from CPU to GPU more efficient.

- Why does OpenGL make heavy use of state variables, for example maintaining a current color and a current transform?

- How do you define a triangle strip? A quad strip? Draw a figure to illustrate your answer.

- List all of the steps that must be completed to implement a display list in OpenGL.

- What is the difference between using immediate mode rendering and using a display list? Explain your answer in terms of the information transferred from CPU to GPU in each case.

- Describe two OpenGL calls to set up the camera for perspective projection. Give examples with reasonable values for the arguments for each call and draw a sketch of the resulting view frustum.

- Explain the use of glTranslatef, glRotatef, and glScalef.

- Explain the difference between the following two sequences of operations. Give a specific example and sketch the expected results to illustrate your point.

```
glRotatef(angle, x, y, z);
glScalef(x, y, z);
drawGeometry( );

glScalef(x, y, z);
glRotatef(angle, x, y, z);
drawGeometry( );
```

- Sketch the graphics pipeline and describe each step.