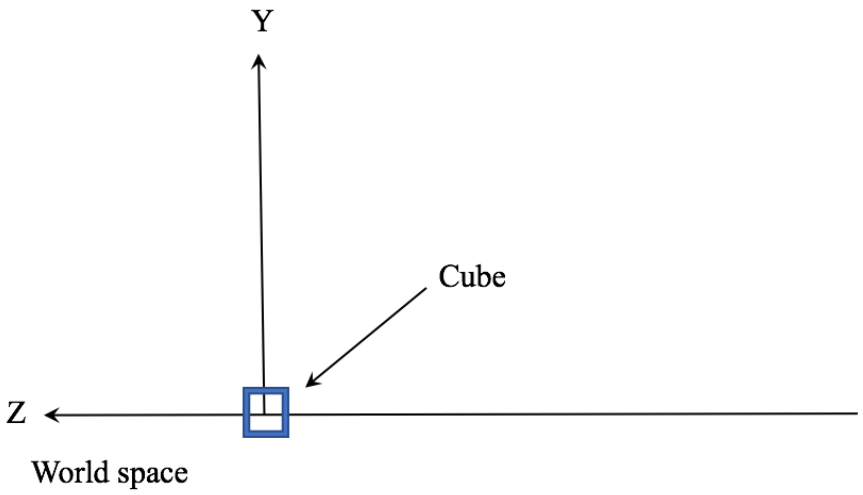
CMPE 360
Hands-On Activity 6

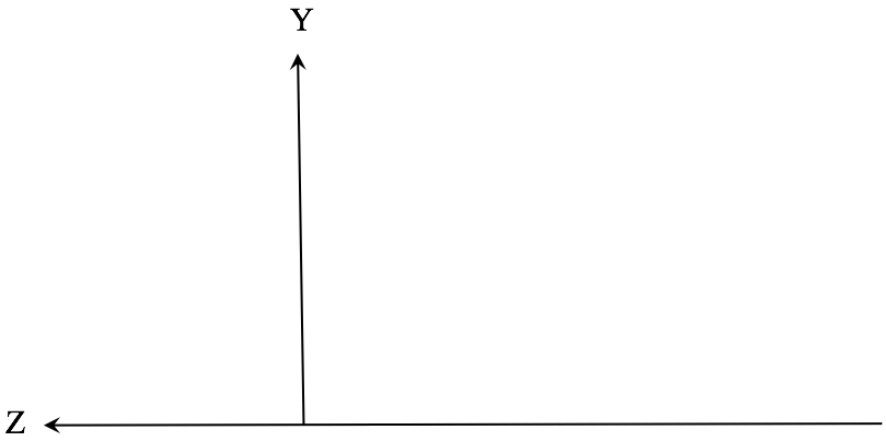
Name(s):

1. Given the following in world space:
   - a cube of size (0.5, 0.5, 0.5) centered at the origin
   - a camera positioned at (0, 4, 0)
   - a lookat point of (0, 0, 0)
   - an up vector of (1, 1, 0)
   - a perspective projection with a 90 degrees field of view
   - a near plane of 1
   - a far plane of 10
   - a screen space of 100 pixels x 100 pixels

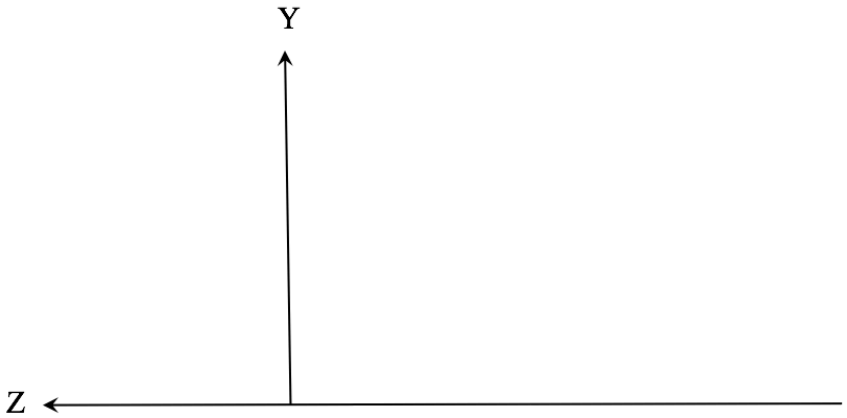
   Looking down (towards) the negative X axis, draw the following frames in these diagrams with everything described above and labeled. This is a 2D drawing with the Z and Y axes showing (we are looking down the **–X axis**). The cube is a square in the world space. Draw all figures **IN 2D, NOT 3D**.

   - **World space**: the cube is already drawn, show the camera, the lookat vector, up vector.
   - **Eye (camera) space**: draw the cube as a square, the camera, the lookat vector.
   - **Clip space [view volume before perspective divide]:** draw the cube, the camera, lookat vector, the frustum, near, far distances.
   - **Clip space [view volume after perspective divide]:** draw the cube, the camera, lookat vector, the frustum, near, far distances.
   - **Normalized device coordinates (canonical view volume):** draw the cube, the camera, the lookat vector, the frustum near, far distances.

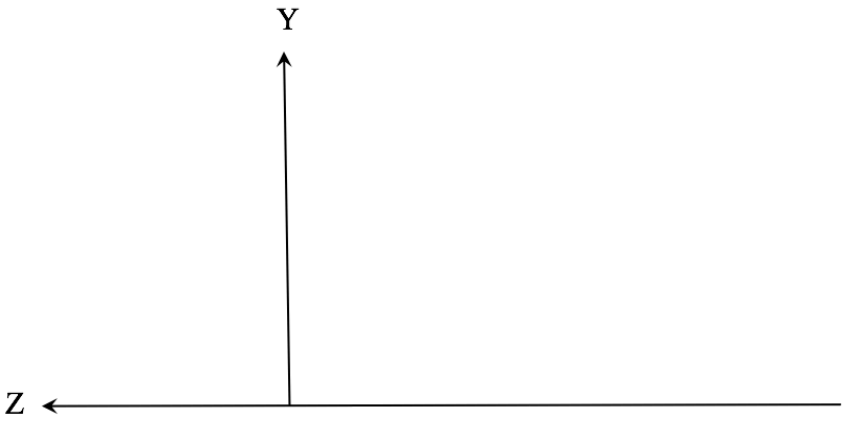




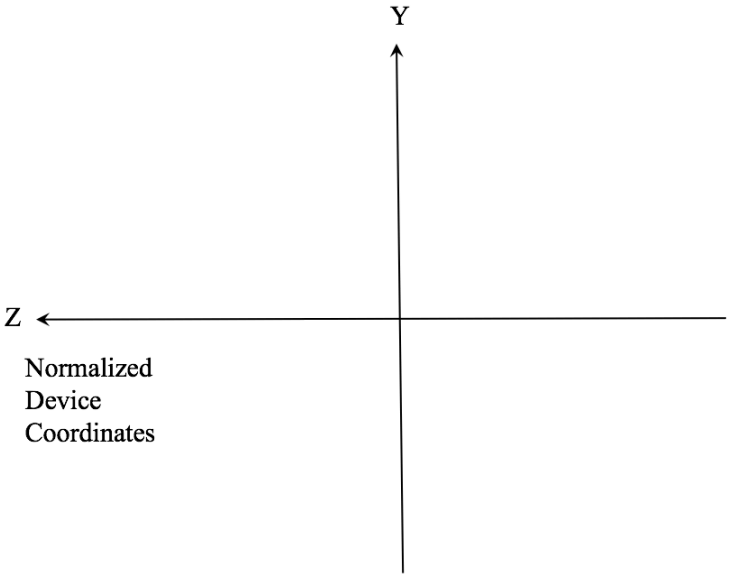
Eye space



Clip space
[before
perspective divide]



Clip space
[after
perspective divide]



Normalized
Device
Coordinates