CS 498VR: Virtual Reality
In-class Worksheet

Transformations

For the following questions, assume we are working in 2D using homogenous coordinates.

1. Which of the following sets of transformations commute?
    a. A rotation and a uniform scaling
    b. A rotation and a squash (non-uniform scaling)
    c. A rotation and a translation
    d. Two translations

2. Create a single matrix that encodes the following transformations:
    a. Translate by +2 in X
    b. Scale by a factor of 4 uniformly

3. Imagine you had a line segment with endpoints (2,1) and (4,1). Can you construct a transformation matrix that will rotate the segment by 90 degrees around its midpoint?

4. Label the blank arrows of the rasterization pipeline below with the correct name of the trabsformation that is used.