

For part 3 our objective was to explore how an inverted matrix could affect the rays in the ray tracing algorithm. An inverted matrix is a special mathematical structure that when multiplied to its base matrix, produces an identity matrix. We were given a restriction on finding this inverted matrix, we could not use a single function to find it. To find the inverse of the matrix, we would have to do it by hand. We settled on using the Gauss-Jordan method. This method allows us to process our matrix and compare it to an identity matrix to find an inversion. After doing some basic math, we found that all we had to do was eliminate the  $d$  values from our  $M$  matrix, which gave us a resulting inverse matrix with negative  $d$  values in the same position. Knowing this, we were then able to apply our inverted matrix against the ray data.