look at matrix =

$$\begin{bmatrix} U_x & U_y & U_z & -C_xU_x-C_yU_y+C_zU_z \\ V_x & V_y & V_z & -C_xV_x-C_yV_y+C_zV_z \\ W_x & W_y & W_z & -C_xW_x-C_yW_y-C_zW_z \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

View Transform = look-at vector * world Transform Matrix

from part 1

the matrix multiplication is too hard to do by hand but that equation should give the right output