1. (15 points) Inverse properties
   A. $(A^{-1})^{-1} =$ _____
   B. $(cA)^{-1} =$ _____
   C. $(AB)^{-1} =$ _____
   D. $(A^n)^{-1} =$ _____
   E. $(A^t)^{-1} =$ _____

2. (10 points) Write elementary matrices corresponding to row operations of I_3
   A. Interchange rows 2 and 3 of I_3.
   B. Multiply row 2 of I_3 by 5
   C. Add 2 times row 1 of I_3 to row 2

3. *(10 points) Show that If A and B are row equivalent matrices and A is invertible then B is invertible.*

4. (10 points) Give the definition of a matrix transformation and state the correspondent neural transformation

5. (10 points) State composition of two matrix transformations and state the correspondent neural transformation.

6. (15 points) Determine the single matrix that describes a reflection in the x-axis, following by a rotation through $\pi/2$ followed by a dilation of factor 3. Find the image of the point $(1\ 2)^T$ under this sequence of mappings.

7. (10 points) What is orthogonal transformation? Show its preservation for norm and dot products.

8. (10 points) Give the definition of an affine transformation.

9. (10 points) State composition of two affine transformations and correspondent neural transformation.