**Instructions.** Show all work, with clear logical steps. No work or hard-to-follow work will lose points.

Problem 1. (3 points) Find the inverse of the matrix

$$A = \begin{bmatrix} -1 & 3\\ 1 & 3 \end{bmatrix}$$

Problem 2. (3 points) Is the following matrix invertible? Why or why not?

$$\begin{bmatrix} 2 & 3 & 4 \\ 0 & 3 & 1 \\ 1 & -1 & -1 \end{bmatrix}$$

Problem 3. (3 points) Solve the following equation.

$$\begin{vmatrix} x-3 & 3\\ 6 & x+4 \end{vmatrix} = 0$$

Problem 4. (1 point) What is your favorite thing about MA 16020?