Name:_____ Math 260
Start Time:_____ Quiz 7 (30 min)
End Time:_____
Date:_____

1. (2 points) Use Cramer's rule to solve the system of equations below:

$$\begin{aligned} 5x_1 + x_2 - x_3 &= -7 \\ 2x_1 - x_2 - 2x_3 &= 6 \\ 3x_1 + 2x_3 &= -7 \end{aligned}$$

2. (2, 1, 3, 1, 1 points) Let $A = \begin{bmatrix} 3 & 1 & 1 \\ -4 & -2 & -5 \\ 2 & 2 & 5 \end{bmatrix}$.

a) Find the characteristic polynomial of A
b) Find the eigenvalues of A including multiplicities
c) Find all eigenvectors of A
d) Find the diagonalizing matrix P
e) Find the diagonal matrix D where $D = P^{-1}AP$