

**MATH221**

quiz #4, 12/01/15

Total 100

Show all work legibly.

Name: \_\_\_\_\_

1. (40) Compute  $\det A = \det \begin{bmatrix} -1 & 2 & 3 & 0 \\ 3 & 4 & 6 & 0 \\ 5 & 4 & 6 & 6 \\ 4 & 2 & 4 & 3 \end{bmatrix}$ .

$\det A =$

2. (80) Let  $A = \begin{bmatrix} 8 & 4 \\ 4 & 8 \end{bmatrix}$

(a) (20) If possible find eigenvalues  $\lambda_1$  and  $\lambda_2$  of the matrix  $A$ .

$$\lambda_1 =$$

$$\lambda_2 =$$

(b) (20) Find eigenvector  $\mathbf{x}_1 = \begin{bmatrix} x_{11} \\ x_{21} \end{bmatrix}$  that corresponds to  $\lambda_1$ .

$\mathbf{x}_1 =$

(c) (20) Find eigenvector  $\mathbf{x}_2 = \begin{bmatrix} x_{12} \\ x_{22} \end{bmatrix}$  that corresponds to  $\lambda_2$ .

$\mathbf{x}_2 =$

(d) (20) Compute  $A^{10}$ .

$$A^{10} =$$