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| Assessment 7Dusty Wilson Math 220 No work = no credit | **Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *I mean the word proof not in the sense of the lawyers, who set two half proofs equal to a whole one, but in the sense of a mathematician, where half proof = 0, and it is demanded for proof that every doubt becomes impossible.*  Carl Gauss 1777 - 1855 (German mathematician) |

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| Find all eigenvalues (3 pts): | :\_\_\_\_\_ | :\_\_\_\_\_ | :\_\_\_\_\_ |

(1 pt) What did Gauss mean by the word, “proof”? Answer using complete English sentences.

(5 pts) Diagonalize , if possible.

(2 pts) How can diagonalization help us find powers of matrices?

(5 pts) The matrix has the eigenvalue . Find of a basis for the corresponding eigenspace AND the dimension of the eigenspace.

(4 pts) Find the eigenvalues of . Check with tech, but show your work.

(5 pts) Prove that if  matrices *A* and *B* are similar, then they have the same characteristic polynomial and hence the same eigenvalues (with the same multiplicities).