Problem 1

In MATLAB notation, write the commands that define this matrix A and the column vectors x and b. What command would test whether or not $Ax = b$?

$$\text{A} = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix} \text{ and x= } \begin{bmatrix} 1 \\ -7 \end{bmatrix} \text{ and b= } \begin{bmatrix} 24 \\ 5 \end{bmatrix}$$

Problem 2

The MATLAB commands A = eye(3) and v = [3: 5]' produce the 3 by 3 identity matrix and the column vector (3,4,5). What are the outputs from A*v and v' *v? (Computer not needed!) If you ask for v*A, what happens?

Problem 3

If you multiply the 4 by 4 all-ones matrix A = ones(4) and the column v = ones(4,1), what is A*v? (Computer not needed.) If you multiply B = eye(4) + ones(4) times w = zeros(4,1) + 2*ones(4,1), what is B*w?

Problem 4

Use inv(P) to invert MATLAB's 4 by 4 symmetric matrix P = pascal(4).

Problem 5

Create Pascal's lower triangular L = abs(pascal(4,1)) and test P = LL^{T}.