

Due: Thursday Sept. 22/05

(Show details of your work. Grade is out of 48.)

1. page 11 #12 (use a check column) **5 marks**
2. page 11 #16 (use a check column) **5 marks**
3. page 12 #22 **5 marks**
4. page 12 #24 **8 marks**
5. page 13 #33 **5 marks**
6. page 13 #34 **5 marks**
7. page 25 #2 **4 marks**
8. page 25 #4 **5 marks**
9. Find the solution in C , the complex numbers, to the following linear system of equations

$$\begin{aligned} (2+i)x_1 - (1+i)x_2 &= -2+i \\ 2x_1 + 4ix_2 &= 6i, \end{aligned}$$

where i denotes $\sqrt{-1}$.**6 marks**

10. (Bonus Question; you can use the *sym* command in MATLAB if you like)
Consider the linear system (in variables x, y, z, w)

$$\begin{aligned} x + 2y + kz + w &= 0 \\ 2x + 3y - 2z + (1-k)w &= k \\ x + 2y - z + (2k+1)w &= k+1 \\ kx + y + z + (k^2-2)w &= 3 \end{aligned}$$

- (a) Find a value or values of k so that this system has no solution.
- (b) Find a value or values of k so that this system has infinitely many solutions.
- (c) For each value of k found in Item 10b, find all solutions (in vector form).

10 marks