

For the first part of this assignment you will be considering the system of equations

$$2x_1 - 3x_2 + x_3 = 11$$

$$3x_1 \quad + 5x_3 = 19$$

$$4x_1 + x_2 + 6x_3 = 23$$

1. Every system of equations can be written as $A\mathbf{x} = \mathbf{b}$ for a coefficient matrix A and vectors \mathbf{x} and \mathbf{b} . \mathbf{x} is the solution vector. Give A , \mathbf{x} and \mathbf{b} , labeling each correctly.

2. Give the augmented matrix for the system, then row reduce it to upper triangular form a step at a time, giving a written description of what happens at each step.

3. Carefully copy your row reduced matrix to the back side. Then show clearly all the steps of back substitution to find the solution vector x . Check your answer somehow, and find your errors and correct them if your answer is not correct.