The Elimination Method (replacement for box p.278)

1. Make the leading coefficient of the first equation be as far to the left as possible by exchanging rows with a later equation, if necessary. Call the leading variable u, and call its coefficient a.

2. Eliminate u from each later equation as follows: let b be the coefficient of u in the later equation; replace the later equation by b times the first equation minus a times itself. [In the row operation notation of the text, this written as $bR_1 - aR_k$ placed next to row k.]

3. Repeat steps 1 and 2 for the second equation. Make its leading coefficient be as far to the left as possible by exchanging with a later equation, if necessary. Then eliminate its leading variable from each later equation.

4. Repeat steps 1 and 2 for the third equation, fourth equation, and so on, until it is not possible to go any further.

5. *(Do this step if the final system is required to be in row echelon form.)* Make the leading coefficient of each row be 1 by multiplying each row by the reciprocal of its leading coefficient.