

Gaussian Elimination with Partial Pivoting

- 1) Ask user for matrix A
- 2) Ask user for vector b and n as a whole number
 - a) For $k = 1$ until $n-1$; with step 1
 - (i) For $p = k$ until n ; with step 1
 - (ii) $a_{kk} = \max |a_{pk}|$
 - b) If $a_{kk} = 0$
 - (i) Print "Use another method"
 - c) If not
 - (i) If $k \neq p$
 - (ii) Change row k for p
 - (iii) End of if
 - d) End of if
 - e) For $i = k + 1$ until n ; with step 1
 - (i) $m_{ik} = a_{ij}/a_{kk}$
 - (ii) if $m_{ik} \leq 1$
 - (1) For $j = k$ until $n+1$; with step 1
 - (2) $a_{ij} = a_{ij} - m_{ik} * a_{ik}$
 - (iii) end of if
 - f) $x =$ progressive replacement
 - (i) for $i = n < 1$; with 1 step
 - (ii) $sum = 0$
 - (1) for $j = i + 1 < 1$; with 1 step
 - (a) $sum = sum + a_{ij} * x_{ij}$
 - (2) $x_i = (a_{in} + 1 - sum) / a_{ij}$