Algorithm for Gauss Seidel

- Initialize x[i],b[i],a[i][j]
- Step 1: num=b[i]
- Step 2:if j!=I, num=num-a[i][j]x[j]
- Step 3: x[i]= $\frac{num}{a[i][i]}$
- Step 4: r[i]=num
- Step 5: error=error+$r[i]r[i]$
- Step 6: error= $\sqrt{error}$ & repeat until condition satisfied

Algorithm for conjugate gradient method

- Initialize $x^{(0)}$ then $d^{(0)} = r^{(0)} = b - Ax^{(0)}$
- Step 1: $\alpha^i = \frac{r^{(i)^t} r^i}{d^{(i)^t} A d^i}$
- Step 2: $x^{i+1} = x^i + \alpha^i d^i$
- $step$ 3: $r^{i+1} = r^i - \alpha^i A d^i$
- Step 4 : $\beta^{i+1} = \frac{r^{(i+1)^t} r^{i+1}}{d^{(i)^t} r^i}$
- Step 5 : $d^{i+1} = r^{i+1} + \beta^{i+1}\ d^i$
- Step 6: now repeat step 2 to step 5 until condition satisfied.