In[149]:=
```
Clear[s];
BordaS[sigma_, sigmaP_] :=
  (n = Length[sigma]; Sum[(n - sigma[[i]]) * (n - sigmaP[[i]]), {i, 1, n}]);
Mat[S_, n_] := (P = Permutations[Range[1, n], {n}];
   Table[Table[S[sigma, sigmaP], {sigmaP, P}], {sigma, P}]);
dot[A_, B_] := (k = Length[A]; Sum[A[[i]] * B[[i]], {i, 1, n}]);
R[S_, n_] := (M = Mat[S, n]; Print[MatrixForm[M]]; Print[Eigenvalues[M]];
   EV = Eigenvectors[M]; Print[MatrixForm[Transpose[EV]]]; MatrixRank[M]);
```

In[154]:=
```
R[BordaS, 3]
```

$$\begin{pmatrix} 5 & 4 & 4 & 2 & 2 & 1 \\ 4 & 5 & 2 & 4 & 1 & 2 \\ 4 & 2 & 5 & 1 & 4 & 2 \\ 2 & 4 & 1 & 5 & 2 & 4 \\ 2 & 1 & 4 & 2 & 5 & 4 \\ 1 & 2 & 2 & 4 & 4 & 5 \end{pmatrix}$$

{18, 6, 6, 0, 0, 0}

$$\begin{pmatrix} 1 & -1 & 0 & 3 & 2 & 2 \\ 1 & 0 & -1 & -2 & -1 & -2 \\ 1 & -1 & 1 & -2 & -2 & -1 \\ 1 & 1 & -1 & 0 & 0 & 1 \\ 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 \end{pmatrix}$$

Out[154]= 3