```
> restart:
> with(linalg): Digits:=3:
Warning, new definition for norm
Warning, new definition for trace
```

Set up the matrix A as the number of wins each team has over another (every pair of teams played ten times against each other).

```
> A:=matrix([[0,4,5,2,4,7],[6,0,4,1,7,6],[5,6,0,9,5,5],
           [8,9,1,0,7,8],[6,3,5,3,0,8],[3,4,5,2,2,0]]);
```

$$A := \begin{bmatrix} 0 & 4 & 5 & 2 & 4 & 7 \\ 6 & 0 & 4 & 1 & 7 & 6 \\ 5 & 6 & 0 & 9 & 5 & 5 \\ 8 & 9 & 1 & 0 & 7 & 8 \\ 6 & 3 & 5 & 3 & 0 & 8 \\ 3 & 4 & 5 & 2 & 2 & 0 \end{bmatrix}$$

Set up the vector V, which is the total number of wins for each team. From this first vector we can say that the ranking of teams is < 4, 3, 5, 2, 1, 6 >.

```
> V:=vector([22, 24, 30, 33, 25, 16]);
```

$$V := [22, 24, 30, 33, 25, 16]$$

This will multiply the matrix A and the vector V, normalize the vector, and set the new vector equal to V. This loop will run ten times to get a long-term distribution (of course, for more exact terms we can run the loop 100, 1000, or an infinite number of times).

```
> for i from 1 to 10 do
    evalf(normalize(evalm(A&*%)))
  od;
```

$$[.352, .374, .508, .487, .391, .287]$$
$$[.361, .382, .492, .492, .400, .288]$$
$$[.356, .380, .494, .494, .397, .284]$$
$$[.357, .379, .496, .492, .396, .285]$$
$$[.357, .379, .496, .492, .397, .285]$$
$$[.357, .379, .496, .492, .397, .285]$$
$$[.357, .379, .496, .492, .397, .285]$$
$$[.357, .379, .496, .492, .397, .285]$$
$$[.357, .379, .496, .492, .397, .285]$$
$$[.357, .379, .496, .492, .397, .285]$$

From the results we can see that, when normalized, the order of the teams is <3,4,5,2,1,6>. This is contrary to first belief that the teams were ranked on total wins. Team 3, although they were second in total wins, played a much harder schedule than team 4.