If you happen to remember, the first time we talked about S_3 in class (when I made you stand up and permute yourselves), we defined the elements as: $\sigma_0 = \epsilon$, $\sigma_1 = (2,3)$, $\sigma_2 = (1,3)$, $\sigma_3 = (1,2)$, $\sigma_4 = (1,2,3)$, and $\sigma_5 = (1,3,2)$. The Cayley table for this definition is given below.

	σ_0	σ_1	σ_2	σ_3	σ_4	σ_5
σ_0	0	1	2	3	4	5
σ_1	1	0	4	5	2	3
σ_2	2	5	0	4	3	1
σ_3	3	4	5	0	1	2
σ_4	4	3	1	2	5	0
σ_5	5	2	3	1	0	4

But when we defined an isomorphism between D_3 and S_3, we defined the elements of S_3 as: $\tau_0 = \sigma_0$, $\tau_1 = \sigma_4$, $\tau_2 = \sigma_5$, $\tau_3 = \sigma_3$, $\tau_4 = \sigma_2$ and $\tau_5 = \sigma_1$, because this arrangement led to a nicer picture. First, rearranging the σ's gives this Cayley table:

	σ_0	σ_4	σ_5	σ_3	σ_2	σ_1
σ_0	0	4	5	3	2	1
σ_4	4	5	0	2	1	3
σ_5	5	0	4	1	3	2
σ_3	3	1	2	0	5	4
σ_2	2	3	1	4	0	5
σ_1	1	2	3	5	4	0

And then re-labeling with the τ's gives:

	τ_0	τ_1	τ_2	τ_3	τ_4	τ_5
τ_0	0	1	2	3	4	5
τ_1	1	2	0	4	5	3
τ_2	2	0	1	5	3	4
τ_3	3	5	4	0	2	1
τ_4	4	3	5	1	0	2
τ_5	5	4	3	2	1	0

And in class, we saw (and here, we confirm by noting the identical color pattern) that this gives an isomorphism between S_3 and D_3:

	R_0	R_{120}	R_{240}	F	F'	F''
R_0	0	120	240	F	F'	F''
R_{120}	120	240	0	F'	F''	F
R_{240}	240	0	120	F''	F	F'
F	F	F''	F'	0	240	120
F'	F'	F	F''	120	0	240
F''	F''	F'	F	240	120	0