Use the matrix multiplication routine to compute and display the transition matrix T^n for the water vat problem described in the instructor guide for $n = 1, 2, 3, 4, 5, 10, 20, 30, 40\ 50$.

Compute the distributions for the same values of n, that is, $v_n = T^n v_0$

Draw the state diagram for an animal that can be eating (E), resting (R), or playing (P). The animal eats 40 percent of the time, rests another 40% of the time, and the rest of the time it is playing. If the animal is eating there is a 50 percent chance it is still eating, a 35 percent chance the animal is resting and a 15 percent chance it is playing after an hour. If the animal is resting there is a 50 percent chance it will be eating, a 30 percent chance it will still be resting, and a 20 percent chance it will be playing after an hour. Finally, if the animal is playing there is a 70 percent chance it will be eating, a 20 percent chance it will be resting and 10 percent chance it will be playing after an hour.

What is the transition matrix for the animal described above?