```
# For Part D
simulate_game <- function(start_position) {
  position <- start_position
  while (TRUE) {
    outcome = sample(1:3, 1)
    if (outcome == 1) {
      position <- (position - 1) %% 5
    } else if (outcome == 2) {
      position <- (position + 1) %% 5
    } else {
      return(position)
    }
  }
}

set.seed(20)
n_simulations <- 3000000

win_counts <- c(0, 0, 0)

# for (start_position in 0:2) {
  for (i in 1:n_simulations) {
    final_position <- simulate_game(start_position)
    if (final_position == 0) {
      win_counts[start_position + 1] <- win_counts[start_position + 1] + 1
    }
  }
}

p_estimates <- win_counts / n_simulations

print(p_estimates)

# For Part E
0 -> count
for(x in 0:20) {
  for(y in 0:20) {
    for(z in 0:20) {
      if(x + y + z == 20) {
        count <- count + 1
        print(c(x,y,z))
      }
    }
  }
}
print(count)
```