

https://classroom.github.com/a/7E54zDH_

According to Wikipedia, a **two pair** consists of "two cards of one rank, two cards of another rank and one card of a third rank." The (true population) probability of this hand is

```
choose(13, 2) * choose(4, 2)^2 * choose(11, 1) * choose(4, 1) / choose(52, 5)
## [1] 0.04753902
```

where $\text{choose}(K, r) = \frac{K!}{r!(K-r)!}$ and $r! = r(r-1)(r-2) \cdots (r-(r-2))1$.

Some pointers follow.

1. Pretending that Ace = 1, Jack = 11, Queen = 12, and King = 13, we can define a deck of cards in R as

```
deck <- paste0(1:13, rep(c("H", "S", "D", "C"), each=13))
```

2. Sampling from `deck` is possible with `sample()`.
3. Estimate the probability of drawing two pair.
4. If you want extra practice (but this will not be graded), estimate the probability of a **flush**, which contains five cards all of the same suit, not all of sequential rank. You'll have to create your own regular expression.
5. For more on regular expressions check out our book [R for Data Science](#).