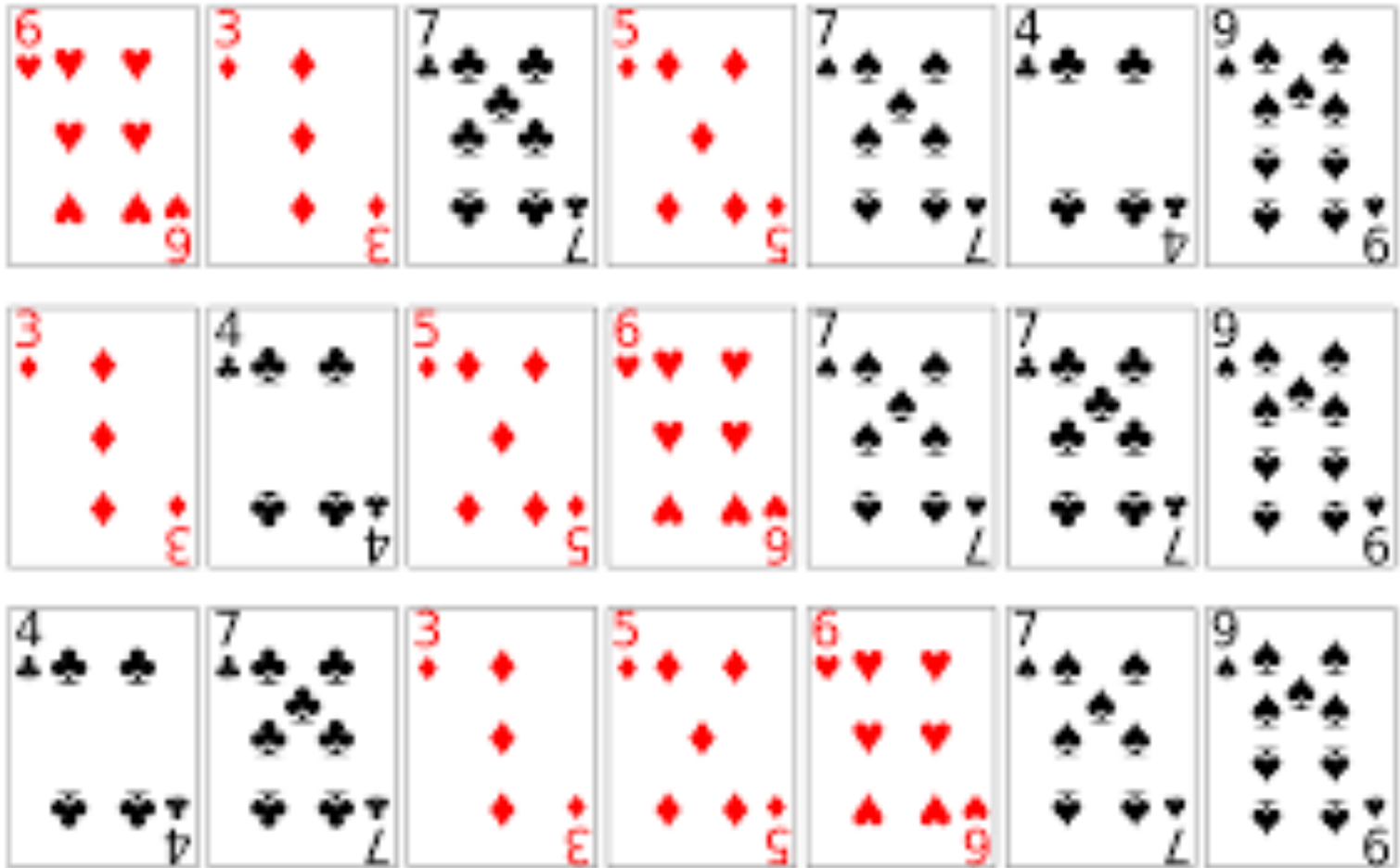


# The Pigeonhole Principle

# What is the pigeonhole principle?



# The Marching Band problem



In a large group, any pair of people are either friends or they're not.

Prove that there must be at least 2 people with the same number of friends



Are there 2 powers of 3 whose difference can be divided by 2016?

$$3^m - 3^n = \dots$$

Can 5 people stand in this infinite lattice forest, so that everybody can see everybody else?

