

Investigating The Properties Of A Perfect Riffle Shuffle

Cards	Cards	Cards	Cards	Cards	Cards	Cards	Cards
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]

Start with a set of 8 cards in order.

A perfect riffle shuffle interleaves the lower half with the top half.

An 'out-shuffle' leaves the first and last card on the outside.

Perform 3 consecutive 'out-shuffles'. **What do you notice?**

An 'in-shuffle' moves the first and last card in one place .

With the 8 cards starting in order perform 3 consecutive 'in-shuffles'.

What do you notice?

How many more 'in-shuffles' are needed to return the cards to their original order?

