Card Trick Problem

This problem is worth 5% on Test 1.
Due Monday September 10

- Step 1: Write down the bottom card.
- Step 2: Deal 3 piles of 4 cards each.
- Step 3: Turn over one card from each pile. Put the rest on the bottom of the deck.
- Step 4: On each of the three count out 13 minus the face value of the card. (Ace=1, Jack=11, Queen=12, King=13.)
- Step 5: Add up the values of the original three cards. Count out this many cards, face down.
- Step 6: Turn over the next card in the deck. It will always be the card you wrote down.
- Problem: Figure out why this trick works. Write up a mathematical explanation.