

Practice Problems 4

1. (Complete Induction) There are two piles of cards and 2 players take turns:
 - Each turn: one player removes any number of cards from exactly 1 of the 2 piles.
 - The player who removes the last card wins.Show by induction that if, in the beginning, the two piles contain the same number n of cards, then the second player can always win.
2. (Complete Induction) Proof by induction for $n \geq 12$ that n cents can be formed using 4-cent and 5-cent stamps.
3. (Complete Induction) Proof by induction that for any integer $n \geq 2$, n is divisible by a prime.