## **ECS20** Discussion: 11/28 – 12/02

## Induction:

Use induction to prove each of the following:

- a)  $2 2 \cdot 7 + \dots + 2(-7)^n = \frac{(1 (-7)^{n+1})}{4}$  for all n > 0
- b) Let h be a real number with h > 1. Show that  $1 + nh \le (1 + h)^n$  for all n > 0
- c) Show that  $n^2$ -1 is divisible by 8 whenever *n* is a odd positive integer

## Fibonacci:

The following problem refer to the Fibonacci numbers defined in class:

Show that for all n >0,  $f_{n+1}f_{n-1} - f_n^2 = (-1)^n$