

## Assignment for Thursday, 1/25

### I Exercises from book:

Section 2.3  $\rightarrow$  2bc, 6c, 9, 13, 14c, 19bd, 15  
20d, 23.

### II Supplementary Exercises:

- ⑥ Prove that any two consecutive Fibonacci numbers are relatively prime.  
(Fib. numbers are defined as:  
 $f_0 = 1, f_1 = 1; f_{n+1} = f_n + f_{n-1}, n \geq 1$ )

### III Optional Exercises:

- ③ Prove that  $\gcd(f_m, f_n) = f_{\gcd(m, n)}$   
where  $f_n$  denotes the  $n^{\text{th}}$  fibonacci number.

[Hint: Prove & use the following Lemmas  
Lemma 1 If  $k/n$  then  $f_k/f_n$

Lemma 2 If  $s \geq 1, t \geq 0$  are integers, then  
 $f_{s+t} = f_{s-1}f_t + f_s f_{t+1}$  ]