

**COMP 312**  
**Assignment 3**  
**Due at 9:00 am, Thursday, September 27 , 2005**  
All problems are of equal value.

## Reading

Brassard & Bratley, Chapter 7, not section 7.8.

## Practice

Brassard & Bratley, 7.2, 7.7, 7.15, 7.18, 7.19, 7.21, 7.24, 7.33, 7.34, 7.36.

## To Be Handed In

1. Brassard & Bratley 7.12.
2. Brassard & Bratley 7.20.
3. Brassard & Bratley 7.35.
4. Brassard & Bratley 7.37.
5. Suppose we were to come up with a variant of Strassen's algorithm based on the fact that  $10 \times 10$  matrices can be multiplied in only  $m$  multiplications instead of the normal 1000. How small would  $m$  have to be for this algorithm to be faster than Strassen's algorithm for large enough  $n$ ?

## Bonus

You have a clock on which the hour hand and minute hand are identical. Assume the hands of the clock move in a continuous fashion. A clock position is *ambiguous* if its not possible to tell what time it is when the hands are in that position. Give an example of an ambiguous clock position. How many ambiguous clock positions are there in a twelve hour cycle of the clock?