

**CAAP Math, Mr. Church, Homework 9**  
Due at the beginning of class on Monday, August 11  
<http://www.math.uchicago.edu/~tchurch/>

Starred questions are harder and are worth more points (but that doesn't mean they're optional).

1. Finish Section 5.1 “Applications of Divisibility”. Read the rest of Section 6.1 “Congruences” starting with “Arithmetic of Residue Classes” on page 163 (you may want to review the beginning of Section 6.1 as well). Read Section 6.2 “Groups and Other Structures”.
2. Do Exercises 5.16, 5.4, 5.9, 6.11, and 6.19.
3. (★) Do Exercises 5.7, 5.12 (recall that a Mersenne prime is a prime number of the form  $2^m - 1$ ; you may wish to think about Theorem 5.8), and 6.17.
4. (★★) Do Exercises 4.5 and 4.7.