

Math 11200, Sec. 40
Homework 22

1. At long last, prove that $a \equiv b \pmod{n}$ if and only if $[a]_n = [b]_n$.
A couple words of advice on how to tackle this.
 - (i) First, remember that to prove an if and only if statement, you have to prove each of the corresponding if-then statements separately.
 - (ii) One of the “directions” (that is, one of the if-then statements) will be pretty straight-forward.
 - (iii) For the other direction, you need to recall how to prove two sets are equal. To do it, you gotta show every element in A is in B and vice versa, every element in B is in A.

2. Compute the elements in $\mathbf{U}(12)$, $\mathbf{U}(20)$, and $\mathbf{U}(50)$.

3. Lastly, do book exercise 6.8. For this exercise, you’ll need to look up what **cyclic group** and **generator** mean.