

MATH 4306 Lab Activities 10
Submissions due Tuesday, April 16, 2002

All group members must sign the submission attesting to the fact that they participated fully in doing this assignment.

Be sure to start ISETL with the .ini file that will give you access to the funcs as discussed in class last time. You should be able to start the activities immediately after arriving in class.

1. Do the activity in Section 5.1.1, #1, p. 153. While running `is_dist` on Z_{12} will take much longer than running it on Z_2 , having the memory box is not an error. In fact, if you notice how long it takes `is_dist` to run on Z_n , n in $\{2,5,6\}$, you might be able to guess how long it will take to run on Z_{12} .

SUBMIT: A statement that you have been able to successfully run the func `is_dist` on the given situations, as well as the even members of Z_6 with operations mod 6. Hint: Don't forget to use the built in `Zmod`, `amod`, and `mmod`.

2. Do the activity in Section 5.1.1, #4, p 153. The func `are_zerodiv` should have inputs: S – a set, a – an operation, m – a second operation, z – the identity for the operation a , x – an element of S , and y – another element of S . Checking `is_dist` should NOT be part of your code for `are_zerodiv`, nor should checking that z is the identity for a . It should only return whether x and y are non-zero, but the result of applying the second operation is z .

The func `has_zerodiv` should have inputs S , a , m , and z as above.

SUBMIT: The results of running `has_zerodiv` on all the examples in Activity 1 along with the even members of Z_6 with operations mod 6.

3. Do the activity in Section 5.1.1, #5, p. 153. The func `units` should have inputs S , a , m as above AND `id`, the identity of the second operation.

SUBMIT: The results of applying the func `units` to the examples in Activity 1 and responses to the questions in Activity #5.

4. Do the activity in Section 5.1.1, #6, p. 153. Hint: this func can be very short.

SUBMIT: The results of applying `is_ring` to the examples in Activity 1 as well as the even members of Z_6 with usual operations mod 6.