

Math 126, problem set 04
Outline due: Wed Sep 30
Due: Mon Oct 05
Last revision due: Mon Nov 16

Problems to be turned in:

1. (a) Can you find an m such that $x^2 \equiv 1 \pmod{m}$ has more than 2 incongruent solutions? More than 4? Try some examples and see if you can find a pattern.

(b) The following statement is not quite correct, and not quite complete:

Let p be prime, and let k be a natural number. The congruence $x^2 \equiv 1 \pmod{p^k}$ has exactly 2 incongruent solutions, namely...

Complete the statement, correct the statement (making as small a change as possible) and prove your new statement.

2. 9.1(a,c).

3. 9.2.

4. 9.4(a,c).

5. 10.2.

6. 11.1.

7. 11.2.