

M360 Mathematics of Information Security

homework sheet # 3

Problem # 1

Compute 3^{102006} modulo 101.

Problem # 2

What are the last 2 digits of 4312^{442} ?

Problem # 3

Find a Fermat witness for the fact that 29353 is composite. What about 19267? *Hint:* Use the course web site to compute a to the power b modulo n (the third item under “RSA cryptosystem”).

Problem # 4

Do a lot of Fermat tests for the number 561. Do you notice something? How about 1105?