

Math 406 – Fall 2009 – Harry Tamvakis
PROBLEM SET 7 – Due October 29, 2009

Reading for this week: the cryptography handout from class.

Problems

From the cryptography handout, Section 10.1, #2, 3, 4, 5, 11, 12, 13, 14, 15. In addition, do the following problems:

A1) Use frequency analysis and the knowledge that the message was enciphered using a shift transformation to decipher

PXAHE WMAXL XMKNM ALMHU XLXEY XOBWX GMMAT
MTEEF XGTKX VKXTM XWXJN TEMAT MMAXR TKXXG WH-
PXW URMAX BKVKX TMHKP BMAVX KMTBG NGTEB XGTUE
XKBZA MLMAT MTFHG ZMAXL XTKXE BYXEB UXKMR TG-
WMA XINKL NBMHY ATIIB GXLLQ

A2) If the two most common letters in a long ciphertext which was enciphered by an affine transformation $C \equiv aP + b \pmod{26}$ are V and A respectively, then what are the two most likely values for a and b ?

A3) Decipher the message IEXXK FZKXC UUKZC STKJW that was enciphered using the affine transformation $C \equiv 11P + 18 \pmod{26}$.