

Math 400 Fall 2017

Cryptology HW 1

Due Thursday, September 7

1. Encrypt the plaintext message “GO HANG A SALAMI” using a Caesar cipher with a shift (to the right) of 7.
2. The following ciphertext has been encrypted with a Caesar cipher (with an unknown-to-you shift). Decrypt the message.

XBPAPHPVCPWDV

For the next two problems, use the following symmetric cipher table:

Plaintext	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Ciphertext	O W M R X G Q U D V F I Y S L E H J T Z K N A P B C
Ciphertext	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Plaintext	W Y Z I P K F Q L R U O C V A X G D N S H J B E M T

3. Encrypt the following plaintext message: “A MAN A PLAN A CANAL PANAMA”
4. Decrypt the following ciphertext message: “YOROYDYOROY”
5. What can you tell about the message in the previous problem without actually deciphering it? What does this tell you about the strength of a monoalphabetic cipher?
6. Encrypt the plaintext message “NEVER ODD OR EVEN”, using a Vigenère cipher with key word “potato”.
7. Decrypt the ciphertext “ODESL UKWGK SXMSK GEPP”, which was encrypted with Vigenère cipher using the key word “octopus”.
8. Encrypt the plaintext message “RATS LIVE ON NO EVIL STAR”, using an Autokey cipher with the key word “vital”
9. Decrypt the ciphertext “UBTW SEFH TTHF”, which was encrypted with an Autokey cipher using the key word “cipher”.