**Transposition Cipher**

**Encrypting:**

**Instead of shifting letters, we will now shift our entire message. We choose a number that**

**will be the length of a row. Then we write our message in a matrix like in this example:**

**Suppose our message is THE SEVEN HILLS OF ROME and our length is 5. Then we**

**write**

**T H E S E**

**V E N H I**

**L L S O F**

**R O M E Z**

**and we add one z at the end to make sure we have a full matrix. Now we encode the message**

**by reading off the columns to get TVLRHELOENSMSHOEEIFZ.**

**Decrypting:**

**In order for Bob to decrypt, he must know the length of Alice’s matrix. This is the secret key**

**of the transposition cipher. Once he knows the length of her matrix, he can create a matrix of**

**the same size to get the message back. He would ignore the “z” since it doesn’t add anything**

**to the message.**

**Problem 1: Encrypt the following message using length 5: BEWARE THE IDES OF**

**MARCH.**

**Problem 2: Decrypt the following message using length 4: INLRREINVCFIIAOA.**