CIS 3362 Homework #2: Affine, Substitution, Vigenere
Due: Check WebCourses for the due date.

1) Prove that encrypting a plaintext with two successive affine cipher keys is no more secure than encrypting a plaintext with a single set of affine cipher keys.

2) For an alphabet of size 67, a set of affine encryption keys is a = 24, b = 53. (Thus the encryption function is f(x) = (24x + 53) % 67.) Determine the corresponding set of decryption keys.

3) Decode the following message, which was encrypted using the substitution cipher. Make sure to discuss all the steps you took, the key you arrived at, and the decoded message.

```
bgdrcykcndjkrkykrrprikrbsbvvdkvvaczsjkxkdcikdptxbqkbgdjktprd
bsczvojbokdjktxbqkrcyksjkxkypalkyphkrdzokgdrobiztrcykobxdlzd
djbrrkykrdkxbsbvvlkplbdycxkmcgrkxepdbekrcdjktxbqkrocgdikdvcr
dbsbvvzrzpvvaibekdjktxbqkdcpgbgobebozpvcgmpytzrpgoaczsbvvjpe
kdcdxpmhdjpdtkxrcgocsgpgodkvvdjkyprkmxkdtjxprkbgdjkykrrpikac
zokmxatdkoiccovzmh
```

4) Decode the following message, which was encrypted using the substitution cipher. Make sure to discuss all the steps you took, the key you arrived at, and the decoded message.

```
zusnzsrosesttwsxocblpvpskozbnbrobfoeubumnmfbqqshosfzuouohgls
tjsfwzusnvopnbfsnmqottbesfnzplhzbpylnztsdoromfjzuospbqqshosn
xopchtbnozbrsfozuospsfszsmtnmponmnbsmrvpozzcnlpogmnojbfzuoqm
hltzcjspohzbpczumzfmppbenjbefcblpnomphuzbylnzbfovopnbfsfbpjo
pzbwozzuovpskoqpbruopcblumxozbzottuopmnohpozvupmnozumzesttgo
sfofhpcvzojsfmfbzuopronnmwo
```

5) Decode the following message, which was encrypted using the Vigenere cipher. Make sure to discuss all the steps you took, the key you arrived at, and the decoded message.

```
olvlxcisxxcmfmqxepbpgfryqgewhpgeelnzruhxckehcamxffzvfbcdewmsy
stbnectkhneawqxarwsnszxieshfiksvgbmummlztehjwefpmolgamxilmlvx
ztvjtbfinxuxgoogmkzxhlmoagwxciabixjnlxkygmqygfhrzcvgbztaxtjgx
xbdoyxzdponatnxlwzwnglxylmyyiamaoogmkzxnggehbgkvxyxidtpbxcqbg
mjivtrhexxafrxrspkrmazmxmldrttvonhmxcsfxmgieuynmaxadeluyoxuxv
lgtbrtshpqwliksweoeguulmxvormpltybzzfhvsdagwkjxblblrungfwnglm
urtrjzrkxcivxhyvvgshimaxjsztvjctesmmrljftlhqzlbpqqexefzxgxzlb
hnxbmibvryhnxciptastatrolrzqqtvtvy
```

6) Decode the following message, which was encrypted using the Vigenere cipher. Make sure to discuss all the steps you took, the key you arrived at, and the decoded message.

```
konhlnluyrzkevtoeckvdzfdvspgagxpoanhulsgosyqguiyvuugzpegtvlsh
rxedpurvtwhegwptxyfuoaikllozeiazaaordejuttvrokjzcwtvlshrxczfs
rvmffnbsctlekehcukvtylhvwvryjeyoafpobhnbiypneihhdukvepdlyeyii
klpljdkhhtluylcwtyeiefzxpluhvrpngnindvegaytzkretoollklvqiezte
znvnrujjzmrtlhsfkwlqleiyvufgczywowtoofkxhzlhznnsgniydsytauiug
zpxqfzvldbrplckffrievtkeswfzrztgufcpskrrbpfisopafpobaekxspxii
sasukatwdgzvlybaxspeoeefistsedzenislykxjzmkeod
```