

## Math F113X: Homework Set 10

- Complete problems #13-17 from the Cryptography section.
- Complete problems A, B, C on Cryptography.
- Complete problems #1-10 on spreadsheets from Section 2.1.6 from the version of the text linked here:  
[https://spot.pcc.edu/math/mathinsociety/chap\\_two\\_intro\\_spreadsheet.html](https://spot.pcc.edu/math/mathinsociety/chap_two_intro_spreadsheet.html)

**Problem A:** Decrypt the ciphertext ZOMRN PEBTB QIUA supposing that it was encrypted using a *progressive Caesar shift / shifting substitution cipher* with starting shift 6 (mapping  $A \rightarrow G$ ) and shifts one additional space after each character is encoded.

**Problem B:**

- Encrypt the plaintext H U N C H B A C K O F N O T R E D A M E using a Vigenère cipher with keyword HUGO
- Decrypt the message R U J W W I L S H H S T R I F I U S supposing that it was encrypted with a Vigenère cipher with keyword CASE

**Problem C:** Double Transposition

- Encrypt the plaintext below using double transposition and first keyword WARM and second keyword MUSHY.  
plaintext: WE PREDICT THE TRIPOD WILL FALL
- Decrypt the ciphertext below assuming double transposition was used where the first keyword was WARM and second keyword was MUSHY.  
ciphertext: TAADP ENEBM TYNNR HEFES DEMEO UNCOW OR

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Remember to write up your homework solutions according to the homework writeup guidelines.

Homework is graded using the following rubric for each problem (or problem part):

**2 points:** You provided a complete answer, with supporting work, written up clearly

**1 point:** Some attempt at a solution, but incomplete writeup / unclear / illegible / no answer

**1 point:** Only an answer, with no supporting work

**0 points:** Missing.

After you do the homework, you need to check your answers against the solutions! Then figure out your errors (if any) and revise your homework before you submit it.

Homework must be submitted on Gradescope.