Name: _____ Solutions _____   score:_____ / 10

There (really) are 10 points possible on this quiz. No aids (book, notes, etc.) are permitted. You may use a calculator. **Show all work and supporting calculations for full credit. Explain how you get your answers.**

   A tabula recta is available.

1. (2 points) **Encrypt** the message THANK GOODNESS IT'S FRIDAY using a tabular transposition cipher with the encryption key word "BREAK."
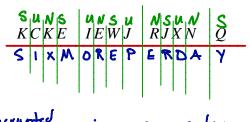
$$
\begin{array}{ccccc}
B & R & E & A & K \\
\hline
S & U & M & M & E \\
R & T & I & M & E \\
\end{array}
\qquad
\begin{array}{ccccc}
A & B & E & K & R \\
\hline
M & S & M & E & U \\
M & R & I & E & T \\
\end{array}
$$

encrypted text   MMSR MIEE UT

2. (2 points) **Decrypt** the message below assuming it was encrypted using a tabular transposition cipher with the encryption key word "BREAK."

$$F N L N I \quad C T A L L \quad D L E X H$$

⟶ 15 letters. So columns of 3.

$$
\begin{array}{ccccc}
A & B & E & K & R \\
\hline
F & N & T & L & E \\
N & I & A & D & X \\
L & C & I & L & H \\
\end{array}
\qquad
\begin{array}{ccccc}
B & R & E & A & K \\
\hline
N & E & T & F & L \\
I & X & A & N & D \\
C & H & I & L & L \\
\end{array}
$$

Netflix and Chill

3. (3 points) **Decrypt** the message below assuming it was encrypted using a Vigenère cipher with encryption key word "SUN."

S	U	N	S	U	N	S	U	N	S	U	N	S
K	C	K	E	I	E	W	J	R	J	X	N	Q
S	I	X	M	O	R	E	P	E	R	D	A	Y

decrypted text : six more per day

4. (1 point) Compare a Vigenère cipher to a tabular transposition cipher. What are the advantages and/or disadvantages.

A Vigenere cipher changes letter frequency, so frequency analysis is less powerful.
Decrypting tabular transposition is tricky.

5. (2 points) Your bill at a restaurant is $34.78 and you want to leave an 18% tip. How much would you add to the bill? (Show both your computation and your answer.)

$$\text{tip} = (34.78)(0.18) = 6.2404.$$

So I add $6.24.