**Caesar Cipher Exploration Questions**

You are sending messages to your allies, but you need to keep them secret from your enemies. You encode letters as numbers using:

\[
\begin{array}{cccccc}
A & B & C & D & \ldots & Z \\
0 & 1 & 2 & 3 & \ldots & 25 \\
\end{array}
\]

and the numbers are then altered using

\[
\text{Coded} = (A \times \text{original} + B) \bmod 26.
\]

**Part 1**

You have a coding machine. Your job is to input text, choose values for A and B and then get the coded messages. Good luck!

Code the message given to you by the teacher.

**Part 2**

Swap your message and values for A and B with a classmate, and try to decode the message by hand. First you must decide what \(1/A\) is \(\bmod 26\). Then decode using

\[
\text{original} = \left( \frac{1}{A} \right) \times (\text{coded} - B) \bmod 26.
\]

Good luck!