

12 Days of ChrisMATH — Day 8

For today's puzzle, you will be decrypting ciphertext by using the *Rail Fence Cipher*.

To encrypt, the secret message is written downwards diagonally on the "rails of the fence". Once the bottom rail is reached, we move diagonally upwards until the top is reached. Then we repeat the process. We obtain the ciphertext by reading the text in the first row, followed by the text in the second row, etc. Traditionally, we write the ciphertext in blocks of four letters.

For example, if our fence had two rails, the message "HAPPY HOLIDAYS" would be encrypted as follows:

H		P		Y		O		I		A		S
	A		P		H		L		D		Y	

Ciphertext: HPYO IASA PHLD Y

A puzzle with three rails with the message "MERRY AND BRIGHT" would be encrypted as follows:

M				Y				B				H	
	E		R		A		D		R		G		T
		R				N				I			

Ciphertext: MYBH ERAD RGTR NI

Each of the three levels of this puzzle will yield a numerical answer. Enter your answers using all numerical digits.

Level 1:

Using **two rails**, decode this message and answer in numerals:

Ciphertext: SNAA TIMN RIDE ATHS HSAY ENER

Level 2:

Using **three rails**, decode this message and answer in numerals:

Ciphertext: THAI NDEN WTOS NSXU DENN TOEO UDHR IY

Level 3:

Using some number of rails, the following ciphertext becomes a meaningful sentence. Decode this message and answer in numerals:

Ciphertext: WIEO ESEP EBHT SHSM FHFR TWLE RMNM ESAT UTIT VIUR