

Problem of the Week

Problem A

Secret Message

Andrea wants to send secret messages to her friends. She creates a grid and fills it with the letters of the alphabet in order. She uses letters to identify the columns of the grid and numbers to identify the rows of the grid. Then she sends a message by using the positions of the letters and spaces in the grid.

To make it harder for people to decode her messages, she uses different sized grids for different messages, and sometimes she leaves some blank spaces at the beginning of the grid. For example, this is a grid with 8 columns and 3 blank spaces at the beginning:

	A	B	C	D	E	F	G	H
1				a	b	c	d	e
2	f	g	h	i	j	k	l	m
3	n	o	p	q	r	s	t	u
4	v	w	x	y	z			

- A) Using the grid above, decode the message: H2D1G3C2C1D2F3F4A2H3A3
- B) Without seeing the particular grid Andrea uses, she can still send her friends secret messages that they can decode if they know how many columns are in the grid and how many blank spaces are at the beginning of the grid. We call this kind of information the key. So for the grid above, the key is 83.

If the key is 62, the grid would have six columns and two blank spaces at the beginning. How do you encode the message: **this is secret** using the key 62?

- C) Decode the message D1D4A6B4A5A4C2D4B1B4D2A6 using the key 51.



STRANDS GEOMETRY AND SPATIAL SENSE, LOGIC

