Problem 1: Recalled Hardware

Sample Data

Input	Output	Explanation
serialNumber = 840316845	false	The phone was manufactured in Malvern, but not in October of 2016.
serialNumber = 841016972	true	The phone was manufactured in Malvern in October 2016, but the unique identifier is divisible by 27.
serialNumber = 841016018	false	The phone was manufactured in Malvern in October 2016, and the unique identifier is divisible by 9 but not by 27.
serialNumber = 141215111	true	The phone was manufactured in New Jersey in December 2015. PLEASE CHECK
serialNumber = 171216063	false	The phone was manufactured in New Jersey in December 2016, which is not in the November 2015 - February 2016. PLEASE CHECK

Problem 2: Newmerals (2 points)

Input	Output	Explanation
newmeralA = AC **newmeralB** = DB **operator** = ^	DC	The 'promotion' operation is performed on the two Newmerals. The operation is evaluated by comparing the A from the first Newmeral with the D from the second Newmeral and selecting D. You would then compare the C from the first Newmeral to the B in the second Newmeral and select C.
newmeralA = AB **newmeralB** = BC **operator** = :	ABBC	While it looks like the two strings are just being being concatenated, this is because the second character of **newmeralA** and the first digit of **newmeralB** are the same.
newmeralA = AC **newmeralB** = BB **operator** = %	BBACBB	The reverse of **newmeralB**, "BB" is placed in front of **newmeralA** to get BBAC. **newmeralB** is then appended to the the end of this string.
newmeralA = DD **newmeralB** = AA **operator** = ^	DD	In both cases, **newmeralA**'s characters are of a higher value than **newmeralB**'s, so the resultant Newmeral is both of **newmeralA**'s characters
newmeralA = BD **newmeralB** = DB **operator** = ':'	BDDB	While it looks like the two strings are just being being concatenated, this is because the second character of the first Newmeral and the first digit of the second Newmeral are the same.
newmeralA = CA **newmeralB** = DA **operator** = %	ADCADA	The reverse of **newmeralB**, "AD" is placed in front of **newmeralA** to get ADCA. **newmeralB** is then appended to the the end of this string.

Problem 3: nCrypt

New Wave has decided to encrypt all of their communications so that attackers cannot steal their trade secrets. They will use a highly advanced encryption technique in which each letter is replaced by the letter **x** letters after it in the alphabet. The message can include uppercase letters and lowercase letters. Any character that is not a letter should not be changed.

Input	Output	Explanation
message = Dave and Anila bends **x** = 5 **operation** = e	Ifaj fsi Fsnqf gjsix	
message = EthaN is cool **x** = 25 **operation** = e	DsgzM hr bnnk	
message= NOZE ku vgpvj kp vjg uvcvg **x** = 2 **operation** = d	LMXC is tenth in the state	
message = 0yhroreel be Pubpbyngr Puvc zhssvaf? **x =** 13 **operation =** e	Blueberry or Chocolate Chip muffins?	

Problem 4: Delivery Drone

Input	Output	Explanation
path = X----***|||0	False	
path = 0---||*-*-X	True	
path = X--*-*-||-0|	True	
path = ***X--|-0	False	
Path= X--**-|*|-0	True	

Problem 5: Password Cracking

Input	Output	Explanation
guess = 10401 **lower** = 1 **upper** = 5 **answer** = 12491	0	Because at least one of the digits we are guessing for is not within the range, we do not need to continue because there is 0 chance of success.
guess = 10401 **lower** = 1 **upper** = 8 **answer** = 12481	1	⅛*⅛ =1/64= 1.5 rounds downs to 1%
guess = 53013 **lower** = 1 **upper** = 8 **answer** = 53413	12	
guess = 77077 **lower** = 1 **upper** = 1 **answer** = 77177	100	
guess = 450140 **lower** = 1 **upper** = 4 **answer** = 452144	6	¼*¼