@YY'7ci bhm'GYb]cfg'; fUbX'G`Ua .'`+\$ A]``]cbŽ']b'GW\c`Ufg\]dg°

Cb' is bY'%, ž'&\$&) ž'@YY'7ci bhm'gYb]cfg'UWX]Yj YX'cj Yf' +\$ a]``]cb']b'gWXc`Ufg\]dgž'fYZYWh]b['ghfcb['UWUXYa]WZ'Uh\`Yh]WZ UbX'Ufh]gh]WhU`Ybhg"



@YYž: `cf]XUžI G5 ! +b 'Ub 'Ughci bX]b['X]gd`UmcZ'UWUXYa]W
UWX]Yj Ya Ybhžh\Y'[fUXi Uh]b['WUggcZ'&\$&) ']b 'h\Y'GW\cc`'8]ghf]Wh
cZ'@YY'7ci bhm'\Ug'YUfbYX'cj Yf' +\$ 'a]``]cb ']b 'gW\c`Ufg\]dg'Zcf
h\Y]f'Z hi fY'YbXYUj cfg"'H\]g'fYa Uf_UV`Y'hchU``\][\`][\hg'h\Y
XYX]WUh]cb 'UbX'fYg]`]YbW'cZ'h\Y'ghi XYbhg'Ua]X'f]g]b['YXi WUh]cbU`
Wcghg'UWfcgg'h\Y'bUh]cb"'GW\cc`'6cUfX'7\U]f'GUa ::]g\Yf
Wca a YbXYX'h\Y'[fUXi Uh]b['gYb]cfg'Zcf'h\Y]f'YI WYdh]cbU`
UWWca d`]g\a Ybhg']b'j Uf]ci g'Z]Y`Xgž']bWi X]b['UWUXYa]Wgž
Uh\`Yh]Wgž'Ufhgž'UbX'\FCH7"'5g'Ubch\Yf'UWUXYa]WmYUf'k fUdg'i dž
ghi XYbhg'UfY'bch''i gh'Wfcgg]b['h\Y'ghU[Y/h\YmfY'ghYdd]b[']bhc'U
Vf][\h'\Z hi fY'gi ddcfhYX'Vmg][b]Z]WUbh'Z]bUbW]U``VUW_]b["

 $K = h \cdot bYUf \cdot m' * ž&$$ \cdot gYb \cdot c \cdot gZ'h \cdot Y$

X]ghf]Wh'\Ug'VYYb'WcgY`m'a cb]hcf]b['dcghl\][\'gW\cc`'d`Ubg" 5\W\cfX]b['hc'h\Y'X]ghf]Wh g'fYW\bh'gi fj Ymž'&ž*' ghi XYbhg'd`Ub'hc UhhYbX'U'Zci f!mYUf'Wc``Y[Y'cf'i b]j Yfg]hm''A YUbk\]`Yž'%ž)' & ghi XYbhg'UfY'[YUf]b['i d'Zcf'hk c!mYUf'Wca a i b]hm'cf'ghUhY \\c``Y[Ygž'-', 'UfY'gYh'Zcf'hYW\b]\\U`'g\W\cc`gž'UbX'gca Y'k]```YbhYf h\Y'k cf_Zcf\W''cf'\c]b'h\Y'5fa YX': cf\W'g"'H\]g'a i `h]ZU\W'hYX \UddfcU\W\'hc'`]ZY'UZhYf'[fUXi Uh]cb'fYZ'Y\\hg'ghi XYbhg X]j YfgY \Ua V]h]cbg"

Gdch`][\h'cb'@cWU`'GW\cc`g

5a cb['h\Y'gi WWYgg'ghcf]Ygž'7UdY'7cfU`'<][\'GW\cc``ghUbXg'ci hž k]h\']hg'gYb]cfg'Wc``YWh]j Y`m'YUfb]b['cj Yf'` %- 'a]``]cb']b gW\c`Ufg\]dgž'a Uf_]b['h\Y'\][\Ygh'Ua ci bh'Zcf'h\Y'gW\cc`"'CUg]g <][\'GW\cc``U`gc'g\cbY'Vf][\h`mž'k]h\'U'hchU`'cZ'` &ž(-, ž\$\$\$ Uk UfXYX'hc']hg'&%, '[fUXi UhYgž']bWi X]b['-''k\cfYWY]j YX'h\Y dfYgh][]ci g'7Ua Vf]X[Y'\bhYfbUh]cbU``X]d`ca U"'Df]bW]dU`'\JW_]Y 7cfYm'Zfca 'CUg]g'YI dfYggYX']a a YbgY'df]XY']b'h\Y'hU`Ybhg'cZ'h\Y WUgg'cZ'\\$\&) ž'Wca a YbX]b['h\Y]f'\UfX'k cf_'UbX'k]g\]b['h\Ya 'U``

 $H\Y'dcgh! [fUXi Uh]cb'dUh\k Umg'Zcf'CUg]g'<][\ \ g'[fUXi UhYg'fYj YU`U'dfca]g]b['Zi hi fY.') \&'k]```UhhYbX': `cf]XU'Wca a i b]hm'Wc``Y[Ygž k \]`Y'%$) `UfY'\YUX]b['hc'i b]j Yfg]h]Yg'': i fh\Yfa cfYž'(&'k]``di fgi Y'hYW\b]WU``hfUXYgž'UbX'U'\UbXZi ``k]```X]j Y'ghfU][\h']bhc'h\Y k cf_ZcfWY'cf'YbhYf'h\Y'a]`]hUfm''H\YgY'XYW]g]cbg'fYZYWh'`Uf[YfhfYbXg']b'YXi WUh]cb'UbX'k cf_ZcfWY'fYUX]bYggž'Ya d\Ug]n]b[dfUWh]WU`'gc`i h]cbg']b'a YYh]b['hcXUmg'W\U``Yb[Yg''$

GWX c Ufg]d = g][hg Ub X HfYb Xg

 $FYgYUfW. Zfca ~6c`X'g\YXg``][\h'cb'h\Y'VfcUXYf'`UbXgWUdY'cZ gW.c`Ufg\]dg']b'h\Y'I b]hYX'GhUhYgž'k]h\'), i ~cZ'5a Yf]WUb'ZUa]`]Yg fY`m]b[~cb'h\YgY'cddcfhi b]h]Yg'hc'Zi bX'Wc``Y[Y'hi]h]cb''BchUV`mž h\Y'Uj YfU[Y'Z]bUbW]U``U]X'Uk UfXYX'hc'Z]fgh!h]a Y'i bXYf[fUXi UhYg ghUbXg'Uh'` %(<math>\dot{z}$ - \$'dYf'mYUfž'U'h\ci [\'Zi ``!f]XY'gW\c`Ufg\]dg fYa U]b'U'fUf]hmž'k]h\'cb`m'\$"%i ~cZ'ghi XYbhg'fYWY]j]b[~igi W\Uk UfXg'''H\Y'fYdcfh'\][\`][\hg'h\Uh'' \$i ~cZ'gW\c`Ufg\]dg'UfY

[$fUbhYX^hc^ghi XYbhg^k]h^; D5g^VYhk YYb^' "$^UbX^' "(\check{z}^gbX]WUh]b[h^Uh^hYfY g^d^Ybhm^cZ^cddcfhi b]hm^Zcf^\UfX!k cf_]b[^ghi XYbhg^"$

 $\pm 0 \text{ ``][\h'cZ'h\Y'f]g]b['Wcghg'cZ'Wc``Y[Y Uj YfU[]b['Ufci bX'`' ' ž+' $Zcf'h\Y'&$&' !&$&('UWUXYa]WmYUf Z]bUbW]U``U]X']g'a cfY'Wf]h]WU`h\Ub'Yj Yf"'Hi]h]cb'\Ug']bWfYUgYX'Vm'U'ghU[[Yf]b['%* %"%i Zfca &$$%'hc'&$&(ž'i g\Yf]b[']b'U'fYU`]hm'k \YfY'ghi XYbh'`cUb'XYVh']b &$&('\]h'` %"* 'hf]``]cb"'H\Y'hfYbX'i bXYfgWcfYg'h\Y']a dcfhUbW''cZ gW\C`Ufg\]dg'UbX'[fUbhgž'k]h\'h\Y'DY``; fUbh'dfc[fUa 'U]X]b[Uddfcl]a UhY`m'+") 'a]``]cb'ghi XYbhg'YUW\'mYUf"$

Hcc`g Zcf Ghi XYbhg UbX: Ua]`]Yg

H\Y`I "G"'8YdUfha YbhcZ'9Xi WUh]cb'dfcj]XYg'gYj YfU``fYgci fWYg U]a YX`Uh`\Y`d]b['ghi XYbhg'bUj][UhY`h\Y`Z]bUbW]U```UbXgWUdY`cZ \][\Yf`YXi WUh]cb": fca 'h\Y`7c``Y[Y':]bUbW]b['D`Ub'hc'h\Y'7c``Y[Y GWcfYWUfXž'ZUa]`]Yg'WUb'Wca dUfY`Wc``Y[Y`Wcghgž'Yj U`i UhY`Uj YfU[Y ghi XYbh'XYVhž'UbX'i bXYfghUbX'[fUXi Uh]cb'fUhYg"'H\Y'7c``Y[Y 5ZZcfXUV]`]hm'UbX'HfUbgdUfYbWm'7YbhYf'gYfj Yg'Ug'Ub'YggYbh]U`hcc``]b'\Y`d]b['ZUa]`]Yg'a U_Y']bZcfa YX`W\c]WYg'UVci h'YXi WUh]cb Zi bX]b["'K]h\'_Ym'ghUh]gh]Wg'fYZYWh]b['W\Ub[Yg']b'Wc``Y[Y'df]W]b[ž ghi XYbhg'bck '\Uj Y'fYgci fWYg'h\Uh'dfca chY'hfUbgdUfYbWm']b i bXYfghUbX]b['YXi WUh]cbU``Wcghg"

H\Y'UW\]Yj Ya Ybhg'cZ'@YY'7ci bhmg'[fUXi UhYg'UfY'bch'1 gh'UfYZYWh]cb'cZ']bX]j]Xi U`'YZZcfh'Vi h'U`gc'U'hYghUa Ybh'hc'Wca a i b]hm gi ddcfh'UbX'Uj U]`UV`Y'fYgci fWYg"'5g'h\YgY'ghi XYbhg'Ya VUf_'cb h\Y]f'Zi hi fY''ci fbYmgž'h\Y]f'\UfX'k cf_'UbX'h\Y'Z]bUbW]U`Ugg]ghUbW''h\Ymj Y'[UfbYfYX'a Um'dUj Y'h\Y'k Um'Zcf'U'[YbYfUh]cb fYUXm'hc'hUW_`Y'h\Y'W\U``Yb[Yg'U\YUX"

8 Y hU]`g	
Cfh	@YYž:`cf]XUžI G5
EiY``Yb	k k k "d]bY]g`UbX!YU[`Y"Wca
	Vc`X"cf[
	• k k k "YX"[cj

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'a Y]b!k]Yb "bYh