

9fX]b[Yf'G_]hU`Ybh'GUa Ubh\U'< ØhhbYf YfcVYfh'X]Y'GdYW]U`'C`ma d]Wg°

GUa Ubh\U'< ØhhbYf'Ui g'9fX]b['[Yk]bbh'6fcbnY'VY]'XYb GdYW]U''C'ma d]Wg'K]bhYfgd]Y'Yb'&\$&)']b'Hi f]b'''Y]b]bgd]f]YfYbXYf'KY[']a''6Y\]bXYfhYbgdcfh"



 $9fX]b[\check{z}'8Yi hgWX`UbX`!`Jcb`9fX]b[`bUWX`Hif]b.`9]b`5i Zgh]Y[`UiZXYb`G_]Yfb$

 $8]Y \%+! \mathring{A} \land f][Y GUa Ubh\U' < \varnothing hhbYf']ghY]b ghfU\ `YbXYg'6Y]gd]Y ``Z\varnothing f \\ 8 i fW\ \ U`hYj Yfa \grave{O}[Yb ii bX'HU`Ybh']a ``Gdcfh''`A]h'bi f'bYi b'\\J\fYb \\ VY[Ubb'g]Y `a]h'XYa ``G_]ZU\fYb ii bX'\Uh'gY]hXYa ``Y]bY \\ VYY]bXfi W_YbXY'FY]gY `\]bhYf'g]W\ "'8]Y ``GW\Ø`Yf]b `XYf \\ B]_c`Ui ggW\ i `Y']b ``9fX]b[`\ Uh'b]W\ h'bi f'nU\`fY]W\ Y'A YXU]``Yb']b \\ XYf'G_]gnYbY'ZØf'A YbgW\ Yb'a]h'6Y\]bXYfi b[`[Yk cbbYbž'gcbXYfb Ui W\ 'VYk]YgYbž'XUgg'\DhYbg]h\hii bX'\@Y]XYbgW\ UZh' < UbX']b' < UbX [Y\Yb"'\A\fYgdcfh`]W\Yb'9fZc`[Y'g]bX'V]g'XUhc'_Ui a 'a Y\f'ni n\A\`Yb"$

GUa a mg: Ua]`]Y`i bhYfghØhnh'g]Y`hUh_fÀZh]["'BYVYb']\fYf Nk]``]b[$ggWkk YghYf'=gUVY``U'i bX']\fYa `[fc *Yb'6fi XYf'DUgWU`[Yb]Y*h'g]Y`XUg'@YVYb']b'9fX]b["'8]Y'^k b[Y'5h\`Yh]b']gh'Y]b'YWkhYg 5``fci bXhU`Ybh.'BYVYb'XYa 'G_]ZU\fYb'VYhÀh][h'g]Y'g]Wk'Ui Wk'VY]a?`YhhYfb'i bX'GWkk]a a Yb'i bX'b]a a h'Ua 'fY[i `ÀfYb Gdcfhi bhYff]Wkh'hY]`"'8Yf'gdcfh`]WkYb'J]Y`ZU`h'g]bX'\]Yf'_Y]bY; <math>fYbnYb'[YgYhnh''Ni XYa 'gd]Y`h'g]Y': YY\UfZYž'k Ug']\fYf ?fYUh]j]hÀh'Y]bYb'k Y]hYfYb'5i gXfi W_j Yf`Y]\h''6Yj cf'g]Y'Ui Z'X]Y G_]Yf'gh]Y[ž'k Uf'g]Y'Y]bY'`Y]XYbgWkUZh`]WkY'<math>=$ b`]bYf]b'''Y]b'[i hYf GhUfh'ZØf']\fY'?Uff]YfY']a 'K]bhYfgdcfh''

9]b i bj Yf[Ygg`]W Yf Gdcfha ca Ybh

8 Ugʻ9b[U[Ya Ybh'j cbʻ5h\`YhYb'k]YʻGUa Ubh\Uʻ]ghʻHY]``Y]bYg
[fÒ» YfYbʻHfYbXgʻ]a '6Y\]bXYfhYbgdcfhžʻXYfʻUi W\'j cb
Cf[Ub]gUh]cbYb'k]YʻXYa '8 Yi hgW\Yb
6Y\]bXYfhYbgdcfhj YfVUbX`Y"J "`[YZÒfXYfh`k]fX"'8]YgY
Cf[Ub]gUh]cb`\UhʻX]Yʻ9bhk]W_`i b['gdcfh`]W\Yf`A Ò[`]W_Y]hYbʻZØf
DYfgcbYb'a]hʻ6YY]bhfÀW\h][i b['j cfUb[Yhf]YVYb'i bX`_Àa dZhʻZØf
[`Y]W\k Yfh][Yʻ7\UbWYb']a 'Gdcfh'

9]b F \emptyset W_V]W_]b X]Y ; YgW]W hY XYg 6Y\]b XYfhYb gd c fhg

9g``c\bh`g]W\ž`Y]bYb`6`]W_`ni fØW_ni k YfZYb.'j cb`&\$\$\$`V]g`&\$%& k UfYb`A YbgW\Yb`a]h`[Y]gh][Yf`6Y\]bXYfi b['j cb`XYb`DUfU`ma d]Wg Ui g[YgW\`cggYbž'k Ug`ZØf'j]Y``I bj Yfgh\AbXb]g`gcf[hY"'8]Y`

6i bXYgj YfY]b][i b['@YVYbg\]`ZY'gYhnhY'g]W\'YbYf[]gW\'ZØf
XYfYb'HY]`bU\a Y'Y]b'i bX'_cbbhY'gW\`]Y»`]W\'j]Y`'VYk Y[Yb"'8Ub_
gc`W\Yf'5bghfYb[i b[Yb'k i fXYb'; fi bX`U[Yb'[YgW\UZZYbž'X]Y'Yg
Gdcfh`Yf\]bbYb'a]h'[Y]gh][Yf'6Y\]bXYfi b['Yfa Ò[`]W\Ybž'YVYbZU``g
Ub'XYb'DUfU`ma d]gW\Yb'Gd]Y`Yb'hY]`ni bY\a Yb"

8]Y'DUfU`ma d]gW\Yb'Gd]Y`YžX]Y'U``Y'j]Yf'\J\\fY'Ub'XYbgY`VYbCfhYb'k]Y'X]Y'C`ma d]gW\Yb'Gd]Y`Y'ghUhhZ]bXYbž'g]bX'Y]bYZUbhUgh]gW\Y'6Ø\bY'ZØf'5h\`YhYb'a]h'6YY]bhfÀW\h][ib[Yb"'G]YiaZUggYb'b]W\h'bif'X]Y'_`Ugg]gW\Yb'8]gn]d`]bYbž'gcbXYfb'UiW\j]Y`Y'gdYn]Y``Y'GdcfhUfhYb'k]Y'6`]bXYbZi »VU``ibXFc``ghi\`VUg_YhVU``ž'X]Y'jcb'XYa'8YihgW\Yb

 $8 \ Yf'K \ Y[\ 'j \ cb'GUa \ Ubh\ U'<\emptyset hhb Yf'nY][\ h'Y]b \ Xfi \ W_gj \ c``ž'X Ugg'a \]h$ $9 b[\ U[\ Ya \ Ybh'i \ bX'I \ bhYfghØhni \ b[\ 'HfÀi \ a \ Y'j \ Yfk \]f_`]W h'k \ YfXYb \\ _ObbYb"' $\stackrel{}{\to} f'9fZc`[\ ']bgd]f]Yfh'b]W h'bi \ f'] \ Y'A \]hghfY]hYfž'gcbXYfb Ui W 'j]Y`Yž'X]Y'g]W \ ZØf'XYb'6Y\]bXYfhYbgdcfh'VY[\ Y]ghYfb"$

8 YhU]`g	
Cfh	9fX]b[ž'8Yi hgW\`UbX
EiY``Yb	kkk"kcWXYbUbnY][Yf"XY
	k k k "`YVYbg\]`ZY"XY

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'bU[!VUmYfb"XY