

GW k Ub_YbXYf'5i hcZU\fYf']b'A ØbghYf. Dc`]nY]'ghcddh') $(! \Rightarrow \hat{A} \setminus f][Yb$

Dc`]nY]'ghcddh') (! λ \f][Yb'VYhfi b_YbY'5i hcZU\fYf']b A ØbghYf"'6`i hdfcVY'i bX'GhfUZj YfZU\fYb'Yfk UfhYh"'@YgYb'G]Y a Y\f $^\circ$

8]Y'U`Ufa]YfhYb'Dc`]n]ghYb'bU\a Yb'bcW\'VYj cf'X]Y'G]hi Uh]cb
Yg_U`]YfhY'A U» bU\a Yb']b'X]Y'<UbX"'8Yf'A Ubbž'XYa 'Yg
cZYbg]W\h`]W\'gW\k YfZ]Y`ž'gY]b': U\fnYi [']b'XYf'GhfU» Y'5b'XYf
; Yfa Ub]U'6fUi YfY]'ni 'ghYi Yfbž'k Uf'VYfY]hg'a Y\fZUW\
UV[Yfi hgW\hž'i bX'gY]b'5i hc'ghchhYfhY'a Y\fa U`g'j cf'g]W\'\]b"'5`g
Yf'gW\`]Y»`]W\'j Yfgi W\hYž'XUg': U\fnYi ['UVni ghY``Ybž'gW\k Ub_hY'Yf
VY]a '5i gghY][Yb'ghUf_ž'k Ug'XYb'NYi [Yb'U`g'Y]bXYi h][Yg'NY]W\Yb
ZØf'gY]bY': U\fi bhØW\h][_Y]h'[U`h"

9fa]hh`i b[Yb'XifW\'X]Y'Dc`]nY]VYUa hYb

8]Y`\]bni [Yfi ZYbYb`Dc`]nY]VYUa hYb`ghY``hYb`gW\bY```Y]bYb`_`UfYb
5hYa U`_c\c`[Yfi W\`ZYghžXYf`Y]b`k Y]hYfYg`\DX]n`ZØf`X]Y
5`_c\c`]g]Yfi b[`XYg`: U\fYfg`k Uf"`\D`Y]bYf`j YfghAbXb]gj c``Yb
<U`hi b[`VfUW\hYb`g]Y`XYb`) (!\A\f][Yb`ni f`Dc`]nY]k UW\Yž`k c`Y]b
5fnh`Y]bY`6`i hdfcVY`YbhbY\a Yb`_cbbhYž`i a `XYb`5`_c\c`[Y\U`h
]a `6`i h`[YbUi `ni `VYgh]a a Yb"`8Yf`: U\fYf`[YghUbXž'j cf`XYf`: U\fh
5`_c\c``_cbgi a]Yfh`ni `\UVYbž`k Ug`gY]bY`Dcg]h]cb`b]W\h`[YfUXY
ghAf_hY"

8]Y'Dc`]nY]'\UbXY`hY'_cbgYeiYbh'I a 'X]Y'G]W\Yf\Y]h'UiZ'XYf GhfU»Y'ni'[Yk À\f`Y]ghYbž'k i fXYb'X]Y': U\fnYi [gW\`ØggY``XYg A UbbYg'g]W\Yf[YghY``h'i bX']\a 'X]Y'K Y]hYfZU\fh'i bhYfgU[h"'8]YgY A U» bU\a Y'gc``hY'j Yf\]bXYfbž'XUgg'Yf'k Y]hYfYb'GW\UXYb Ubf]W\hYh'cXYf'g]W\'gY`Vgh'i bX'UbXYfY'[YZÀ\fXYh"'6Y]XY 9bhgW\Y]Xi b[Yb'ghY\Yb']a '9]b_`Ub['a]h'XYb'ghfYb[Yb FY[Y'i b[Yb'ni f'JYf_Y\fgg]W\Yf\Y]h']b'8Yi hgW\`UbXž'X]Y'XUfUi Z UVn]Y`Ybž'U`_c\c`VYX]b[hY'I bZÀ``Y'ni 'a]b]a]YfYb"

$: c`[Yb`Z\emptysetfXYb`5ihcZU\backslash fYf]$

Bib'aigg'XYf') (!'À\f][Y'AUbb'a]h'Y]bYa'GhfUZj YfZU\fYbfYW\bYb"8]Y'fYW\h`]W\Yb'?cbgYeiYbnYb'_ObbhYb'b]W\h'bifZ]bUbn]Y``Y'GhfUZYbž'gcbXYfb'UiW\'Dib_hY']b': `YbgVif['gck]Ya O[`]W\Y': U\fj YfVchY'bUW\'g]W\'n]Y\Yb"'Gc`W\Y'JcfZ\``Y'hfU[Ybb]W\h'bif'nif'; YZ\h\fXib['UbXYfYf'JYf_Y\fghY]`bY\aYf'VY]žgcbXYfb'\UVYb'UiW\'kY]hfY]W\YbXY'dYfgOb`]W\Y'?cbgYeiYbnYbZØf'XYb'VYhfcZZYbYb': U\fYf"

8]YgY'G]hi Uh]cb'j YfXYi h`]W\h'YfbYi h'X]Y'K]W\h][_Y]h'XYf
j YfUbhk cfhi b[gj c``Yb'HY]`bU\a Y'Ua 'GhfU» Ybj Yf_Y\f"'8]Y'Dc`]nY]
Yfa i h][h'YXYbž'g]W\'U_h]j 'ZØf'X]Y'G]W\Yf\Y]h']a 'GhfU» Ybj Yf_Y\f
Y]bni gYhnYbž']bgVYgcbXYfY'k Ybb'5`_c\c`']a 'Gd]Y`']gh"'¾XYf
9]bnY`bY'gc``hY']b'XYf'@U[Y'gY]bž'fYW\hnY]h]['ni 'Yf_YbbYbž'k Ybb
a Ub'a Ò[`]W\Yfk Y]gY'b]W\h'a Y\f'Z]h'ni a ': U\fYb']gh"

Ni gUa a Yb[YZUgghi]ghiX]YgiY]bi_`Ugg]gWXYgi6Y]gd]Y``XUZØfžik]Yk |WXh][iYgi]ghžib]WXhibi fiX]YiY][YbYbi; fYbnYbini i_YbbYbžigcbXYfbUi WXiUi ZiX]YiG]WXYf\Y]hiU``YfiJYf_Y\fghY]`bY\a Yfini iUWXhYb"i8]YDc`]nY]i]ghik Y]hYf\]biYb[U[]Yfhžigc`WXYiJcfZÀ``Yini ij Yf\]bXYfbii bXUddY``]YfhiUbiU``YiJYf_Y\fghY]`bY\a Yfži]\fYiJYfUbhk cfhi b[iYfbghni ibY\a Yb"

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