

GdfUW\hYghg`ZØf`?]hUg``K Ug`9`hYfb`]a BØfbVYf[Yf`@UbX`k]ggYb`a ØggYb°

 $= a \cdot B \otimes fb \vee Yf[Yf'@UbX'kifXYb'jYfdZ]WkhYbXY'GdfUWkhYghg'Z \otimes fbXYf[UfhYb_]bXYf'Y]b[YZ \otimes fhžia'Zf \otimes Y'GdfUWkZ \otimes fXYfib[ni'[Yk \A\f`Y]ghYb'']$



@Ui Zž'8 Yi hgWX `Ub X'!'8]Y'GdfUWX ZÒfXYfi b[']b'VUmYf]gWX Yb'?]hUg b]a a h: U\fh'Ui Z''GY]h'A Àfn'&\$&) 'a ØggYb'U``Y'?]bXYf[UfhYb_]bXYf j cf'XYf'9]bgWXi `i b['Y]bYb'GdfUWX hYgh'UV`Y[Ybž'k]Y'b!`Ub X"XY VYf]WX hYh"'8]YgYf'HYgh'gc```\Y'ZYb'ZYghni ghY``Ybž'cV'X]Y'? `Y]bYb VYgcbXYfY'I bhYfghØhni b[']b'XYf'GdfUWXYbhk]W_`i b['VYbÒh][Yb" 8 Ug'bYi Y'; YgYhn'XYg'VUmYf]gWXYb'@UbXhU[g'j YfdZ]WXhYh'U``Y?]bXYfž'XYb'HYgh'UVni `Y[Ybž'a]h'5i gbU\a Y'XYfYfž'X]Y'j cb']\fYa?]bXYf[UfhYb'U`g'Ui gfY]WXYbX'8Yi hgWX'gdfYWXYbX'VYghÀh][h k YfXYb"'8 UVY]'XØfZYb'bi f'ghUUh`]WX'[YZÒfXYfhY'9]bf]WXhi b[Yb X]YgY'6YghÀh][i b['Ui gghY``Yb"

8]Y 'YfghYb '9`hYfb'i bX'?]bXYfž'X]Y ']b'XYf'_ca a YbXYb 9]bgW\i `i b[gfi bXY']a 'GW\i `'U\f'&\$&*#&+'Ub'X]Y 'FY]\Y'_ca a Ybž ghY\Yb'gW\cb'VYfY]h"'9g'k]fX'[YgW\Ahnhž'XUgg'YhkU'%'\$"\$\$\$?]bXYf'gW\iadaz]W\h]['kYfXYbž'jcb'XYbYb'fibX'(\$"\$\$\$']b'XYb; Ybi gg'XYf'GdfUW\hYghg'_ca a Yb"'Gc``hYb'X]Y'?]bXYf'XYb'HYghb]W\h'VYghY\Ybž']gh'Y]b''Jcf_i fg'8Yi hgW\''VY`Y[hž'XYf'jcbYb[U[]YfhYb'dAXU[c[]gW\Yb':UW_fAZhYb']b?]b?]bXYfhU[YgY]bf]W\hib[Yb'ibX'; fibXgW\iadax''Y\fYfb'ia[YgYhnhk]fX"'

K YgYbh`]WX Y '9]bV`]W_Y 'ni f`dfU_h]gWX Yb`I a gYhni b['X]YgYf`bYi YbFY[Y`i b[Yb`_cbbhYb`VY]'Y]bYf` \(\pi\)Zcfa Uh]cbgj YfUbghU`hi b[Yf\U`hYb`k YfXYbž'X]Y`]a '@UbXfUhgUa h`]b`@Ui Z'ghUhhZUbX"'8]YgY J YfUbghU`hi b['YfZfYi hY`g]WX`[fc» Yf`6Y`]YVh\Y]hž'i bX`XfY] [Y`i b[YbYb`?]hUg`VYf]WX hYhYb`XUfØVYfž'k Ug`g]Y`]a 'Jcf_i fg 8 Yi hgWX`Yf`YVh`\UVYb`i bX`hY]`hYb`bØhn`]WXY`H]ddg'a]h`XYb 5bk YgYbXYb"

8 Ug Gd]?]!Dfc[fUa a]b B Øfb V Y f[

± BØfbVYf['[]Vh'Yg'ni XYa ']bbcj Uh]j Y'Dfc[fUa a Y'k]Y'Gd]?]žXUg j ca '≯ [YbXUa h'XYf'GhUXh'Ybhk]W_Y`h'k i fXYž'i a 'X]Y'gdfUW\`]W\Y 6]`Xi b[']b'?]bXYfhU[YgY]bf]W\hi b[Yb'ni 'ZÒfXYfb"'8 UVY]'ghY\Yb a Y\fYfY'dÀXU[c[]gW\Y'GW\k Yfdi b_hY']a ': c_i gž'k]Y'X]Y : ÒfXYfi b['XYf'd\cbc`c[]gW\Yb'6Yk i ggh\Y]hž'8]U`c[]gW\Yg'@YgYb gck]Y'gW\f]ZhgdfUW\`]W\Y'9fZU\fi b[Yb'a]h'Y]bYa '@hYfUWh! 7YbhYf "'8]YgY'?cbnYdhY'k i fXYb'b]W\h'bi f'dfU_h]gW\'Ybhk]W_Y`hž gcbXYfb'Ui W\'k]ggYbgW\UZh`]W\'Yj U`i]Yfhž'i a 'g]W\Yfni ghY``Ybž XUgg'X]Y'?]bXYf'cdh]a U``[YZÒfXYfh'k YfXYb"

8]Y'fY[Y`a À»][Yb'Ei U`]Z]n]Yfi b[ga U» bU\a Yb'ZØf'9\fYbUa h`]W\Y i bX': UW_fÀZhY'k YfXYb'ØVYf'X]Y': UW\ghY``Y' DYfgcbU`Ybhk]W_`i b[i bX': cfhV]`Xi b[.'Gcn]U`Y'6Yfi ZY'fD9: .G6Ł 'Ub[YVchYb"'9]b
VYgcbXYfg'gdUbbYbXYg'A cXi `'XYg'Gd]?]!Dfc[fUa a g']gh
@YgYZfYi XY ž'VY]'XYa '9\fYbUa h`]W\Y'fY[Y`a À»]['ZØf'_`Y]bY
; fi ddYb']b'XYb'?]hUg'`YgYbž'i a 'X]Y'GdfUW\!'i bX
DYfgÒb`]W_Y]hgYbhk]W_`i b['XYf'?]bXYf'ni 'i bhYfghØhnYb"'<]YfVY]
V]YhYh'XUg'\$ [YbXUa h'X]Y'bchk YbX][Y'ZUW\`]W\Y'Ei U`]Z]n]Yfi b[
Ub"

J]Y`ZU`h']b'XYf'GdfUWXZÒfXYfib[

8 UgʻGd]?]!Dfc[fUa a ʻi a ZUgghʻUi W. ʻX]YʻA cXi `Yʻ"A Ua U#DUdUʻ`Yfbh 8 Yi hgW "ž'XUgʻ9`hYfbʻVY]'XYfʻ\bhY[fUh]cbʻ]bʻX]YʻXYi hgW YʻGdfUW Yi bXʻ?i `hi fʻi bhYfghØhnhžʻgck]YʻXUgʻA cXi `ʻ GW i `hØhY žʻXUgʻg]W a]hʻXYfʻJcfVYfY]hi b[ʻUi ZʻX]Yʻ9]bgW i `i b[ʻVYZUggh'' 8]YgY Dfc[fUa a Yž'ni gUa a Ybʻa]hʻXYbʻJcf_i fgYbžʻY[YbʻY]bYʻZi bX]YfhY 6Ug]gʻZØfʻX]YʻgdfUW `]W Yʻ9bhk]W_`i b[ʻXYfʻ?]bXYf''

Ni gUa a Yb[YZUggh'k]fX'Xi fWX'gc`WX'i a ZUggYbXY'A U» bU\a Ybžk]Y'g]Y'gckc\`']b'XYb'GdfUWXhYghg'U`g'Ui WX']a 'Gd]?]!Dfc[fUa a g]WXhVUf'kYfXYbž'g]WXYf[YghY``hž'XUgg'X]Y'?`Y]bghYb']b'6UmYfb'X]YVYgha Ò[`]WXYb'7\UbWYb'Ui Z'Y]bY'YfZc`[fY]WXY'gdfUWX`]WXY9bhk]W_`i b['\UVYb"'8Ua]h'kYfXYb'b]WXh'bi f'X]YgY'?]bXYf'gY`Vgh[YZÒfXYfhž'gcbXYfb'Ui WX'X]Y'[YgUa hY'; Ya Y]bgWXUZh'Yf\À`h'X]YA Ò[`]WX_Y]hž'j cb'Y]bYf'[i hYb'GdfUWXVUg]g'ni 'dfcZ]h]YfYbž'gY]'YgXi fWX'X]Y'kYfhj c``Y'5fVY]h'XYf'?]hUg'cXYf'X]Y'Yb[U[]YfhYIbYfghØhni b['gY]hYbg'XYf'9`hYfb"

8 Y hU]`g	
Cfh	@Ui Zž'8 Yi hgWX`Ub X
EiY``Yb	• b!`UbX"XY
	• k k k "bi YfbVYf["XY

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