

A UgYfb!5`Ufa `]b CVYfVUmYfb. K Y]hYfY ⇒bZY_h]cbYb Xfc\Yb°

A UgYfbZA``Y']b'C VYfVUmYfb.'9]b'A YbgW\']bZ]n]Yfhz'k Y]hYfY Yfk UfhYh''; Ygi bX\Y]hgUa h'k Ufbh'i bX'Ya dZ]Y\`h =a dZØVYfdfØZi b["



K U`X_fU]Vi f[ž'8 Yi hgWX `Ub X '!' ⊕ `K U`X_fU]Vi f['\Uh'g]WX 'Y]bY

DYfgcb 'a]h'A UgYfb ']bZ]n]Yfhž'k Ug'X]Y'; Ygi bX\Y]hgVY\ÒfXYb

U`Ufa]Yfh'\Uh'' @Ui h'XYa 'dbd"XY'Yfk UfhYb 'XUg' @UbXfUhgUa h

A Ø\`XcfZ'Ua '⊕b'i bX'XUg'; Ygi bX\Y]hgUa h'k Y]hYfY': À``Y"'9]b

GWX Ø`Yf'XYf'F YU`gWXi `Y']gh'U`g'?cbhU_hdYfgcb']XYbh]Z]n]Yfh'k cfXYb

i bX'V`Y]Vh'V]g'Ui Z'K Y]hYfYg'ni \Ui gY"'8]Y'9`hYfb'XYf'VYhfcZZYbYb

GWX Ø`Yf]bbYb'i bX'GWX Ø`Yf'k i fXYb'VYfY]hg']bZcfa]Yfh"

8]Y'G]hi Uh]cb'k]fX'YfgWkkYfh'Xi fWk'XUg': UWkfUi a df]bn]d'Ub'XYfGWki 'Yž'XUg'Y]bY'j c'`ghÀbX][Y'9fa]hh`i b['U``Yf'?cbhU_hY'bi fVYX]b[h'Yfa Ò[`]Wkh"8Ug'; Ygi bX\Y]hgUa h'ZØ\fh'i a ZUggYbXYAU» bU\a Yb'Xi fWkž'i a 'X]Y'JYfVfY]hi b['XYf'\cWk'UbghYW_YbXYb?fUb_\Y]h'ni 'j Yf\]bXYfb"'6Øf[Yf'kYfXYb'Ui Z[YZcfXYfhž']\fYb

A UgYfb! =a dZgWXi hn`ni 'ØVYfdfØZYb"'6Y]'Gma dhca Yb'k]Y':]YVYfž <i ghYbž'GWXbi dZYb'i bX'Y]bYa 'WXUfU_hYf]gh]gWXYb'< Ui hUi ggWX`U[gc``hYb'6YhfcZZYbY'i bVYX]b[h'j cfUV'VY]']\fYa '5fnh'Ubfi ZYbž UbghUhh'X]Y'DfUI]g'X]fY_h'Ui Zni gi WXYb"

¸ VYfhfU[ib[gkY[YibXGmadhcaY

 $8] Y A UgYfb'k YfXYb'Xi fW 'HfÒd ZW Yb'ØVYfhfU[Yb'c bY a dZgWi hn']gh'ZUgh'YXYf'? cbhU_h'UbghY W_YbX''8] Y = _i VUh]cbgnY] h y YhfÀ[h']b'XYf'FY[Y`'%$'V]g'%('HU[Yž'XcW '_Ubb'g]Y'Ui W 'V]g'ni &%'HU[Y'XUi Yfb''8Yf'hmd]gW Y'<Ui hUi ggW `U['a]h'VfÀi b`]W ! fcgUZUfVYbYb': `YW_Yb'hf]hh'Y]b][Y'HU[Y'bUW 'XYb'YfghYb GmadhcaYb'Ui Z''BYVYb'XYb'U_i hYb'6YgW k YfXYb'_ObbYb A UgYfb'ni 'gW k YfYb': c`[YgW ÀXYb'ZØ\fYbž'XUfi bhYf'[Y]gh][Y'6YY]bhfÀW h][i b[Yb'i bX'@À\aib[Yb''8U'Yg'_Y]bY'gdYn]Z]gW Y Ubh]j]fU`Y'H\YfUd]Y'[Y[Yb'A UgYfb'[]Vhž']gh'DfÀj Ybh]cb'Xi fW <math>=$ adZ b['YggYbn]Y`'"

; $YgYhn^{T}WXYFY[Y^{T}ib[Yb^{T}ibX^{T}=adZghUh]gh]_Yb$

 $GY]h`XYf`9]bZ\emptyset \land fib[`XYg`AUgYfbgW\&ihn[YgYhnYg`nY][Yb`X]Y AY`XYXUhYb`XYg`FcVYfh`?cW&! + bgh]hihg`Y]bYb`FØW_[Ub[`XYf`A\f`]W&Yb + bZY_h]cbgnU\`Yb`ibX`Y]bYb`5bgh]Y[`XYf`+ adZeichYbž]bgVYgcbXYfY`VY]`GW&i`_]bXYfb"`6Y]gd]Y`gkY]gY`gh]Y[`XYf`5bhY]`XYf`XcddY`h`[Y]adZhYb`?]bXYf`VY]`XYf GW&i`Y]b[Ub[gibhYfgiW&ib['jcb'&)ž-'i-']a`\J\f`&$$\%`UiZbU\Yni`-$`i-'gY]h`&$$+"`8cW`VYghY\Yb`bUWX`k]Y`jcf + aib]hAhg`ØW_Ybž`X]Y`XUni`ZØ\fYb`_ObbYbž`XUgg$

8]Y'5i gk]f_i b[Yb'XYf'7cfcbUj]fi g!DUbXYa]Y'Ui Z'AY'Xi b[Yb'j cb A UgYfb]bZY_h]cbYb'g]bX'XYfnY]h'bcW'i b_`Uf"Ni _ØbZh][Y
5i gk Yfhi b[Yb'gc``Yb'_`ÀfYbž']bk]YZYfb'XUg'A UgYfbgW\i hn[YgYm
X]Y'<Ài Z][_Y]h'i bX'5i gk]f_i b['j cb'A UgYfb]bZY_h]cbYb']b
8Yi hgW\`UbX'VYY]bZi ggh\UhžgcXUgg'ZfØ\nY]h]['A U» bU\aYb
[YhfcZZYb'kYfXYb'_ObbYbž'i a 'X]Y'5i gVfY]hi b['XYf'?fUb_\Y]h
Y]bni XÀa aYb": Øf'XYhU]``]YfhY' & Zcfa Uh]cbYb'ni 'A UgYfbž
a dZ b['i bX'fYW\h']W\Yb'5gdY_hYb'V]YhYh'X]Y'6i bXYgnYbhfU`Y
ZØf'[Ygi bX\Y]h`]W\Y'5i Z_`Àfi b['kY]hYf\]b'A UhYf]U`]Yb'i bX
AYf_V'ÀhYf'Ub"

8 Y hU]`g	
JcfZU``	⇒ ZY _h]c b
I fgUWXY	A UgYfb
Cfh	K U`X_fU]Vi f[ž'8 Yi hgW\`UbX
EiY``Yb	• k k k "dbd"XY
	• k k k "f_]"XY
	• k k k "`UY \"XY

6Ygi WXYb G]Y i bg Ui Z. b!U["bYh