

8fc[YbgWUbbYf'/ Ua d/K UZZYbU`Ufa. Dc`]nY]'gWXbUddh'&%! >À\f][Yb']b'? O`b! ?U`_°

 \pm 0.7 O`b!? U`_'k i fXY'Y]b'&%! \Rightarrow \f][Yf'ZYgh[Ybca a Ybž bUWXXYa 'Dc`]nY]'8fc[Yb'i bX'Y]bY'[Y`UXYbYb'K UZZY'VY]']\a g]W\Yf[YghY``h'\Uh\Y"



? O`b!? U`_ž:8 Yi hgWk`Ub X`!:9]b`J cfZU```]b`? O`b!? U`_'\Uh'\Øb[gh'X]Y 5i Za Yf_gUa _Y]h`XYf`Dc`]nY]`Ui Z'g]Wk`[Ync[Yb"5a '%*"'* b]`&\$&) bU\a 'XUg'9]bgUhnhYUa 'XYg'6fYbbdi b_hhYUa g'? U`_'Y]bYb &\langle A\f][Yb`A Ubb']b`XYf`B\A\Y`Y]bYg'?]cg_g`ZYgh"'8]Yg'[YgWkU\ [Y[Yb'\langle -()) 'I \fž'U`g'X]Y`6YUa hYb`VY]'Y]bYf'? cbhfc``Y`Y]bY [Y`UXYbY'; `cW_'\langle -gUa h'A U[Un]b`gck]Y`a Y\fYfY Jc``a UbhY`[YgWk cggY']b`gY]bYf`I a \Ab[YhUgWkY'YbhXYW_hYb"'9]bY _ca d`YIY`K UZZYbg]hi Uh]cbž'X]Y`b]Wkhi bVYa Yf_h`V`]YVhž'XU`XYf A Ubb`VYfY]hg`]b`XYf`JYf[Ub[Yb\Y]h`kY[Yb'JYfghO\sample Yb`[Y[Yb'XUg GdfYb[ghcZZ[YgYhn`dc`]nY]`]Wk`VY_Ubbh`k Uf"'_ghU"XY`VYf]Wk`hYhž XUgg'X]Y`8i fWkgi Wki b['gY]bYg'JUhYfg'?]cg_ž'XYf`]b

i ba]hhY`VUfYa `Ni gUa a Yb\Ub['ghY\hž'YXcW\'_Y]bY`k Y]hYfYb 5i ZZÀ``][_Y]hYb`ni hU[Y`VfUW\hY"

8fc[Ybg]hi Uh]cb]b? O`b

 $8]Y \cdot 8 fc [Yb_f] a]bU`]hAh`]ghY] b \cdot Yfbgh \ UZhYg`Dfc V`Ya \check{z}`XUg`b] WAh`bi f]b \cdot ? \grave{o}`b\check{z}`gcbXYfb`Ui WA`Vi bXYgk Y]h`ni `VYc VUWAhYb`]gh"`8 Yf ?cbgi a `]``Y[U`Yf`8 fc [Yb`ghY``hY]b`[fUj]YfYbXYg`[Ygi bX\Y]h`]WAYg F]g]_c`XUfž`i bX`X]Y`NU\``XYf`8 fc [YbhchYb`gh]Y[`&$&'`Ui ZYhk U &"&' $"`=a a Yf`k]YXYf`hUi WAYb`: Å``Y`Ui Zž`]b`XYbYb`8 fc [Yb`]b [f\grave{o}`YfYb`AYb[Yb`Ub[YVchYb`kYfXYbž`cZh`VY[`Y]hYhjcb VYk UZZbYhYb`?cbZ]_hYb"`_ghU"XY`VYf]WAhYh`ni XYa 'j cb`kY]hYfYb ?cbhfc``Yb`]b`? \grave{o}`bž`VY]`XYbYb`a Y\fYfY`8 fc [YbXYU`Yf`Ui ZZ`c[Ybž k Ug`XUfUi Z`\]bk Y]ghž`XUgg`X]Y`Dc`]nY]`Xf]b[YbX`Ua '6U```V`Y]VYb a i ggž`i a 'X]Y`G]hi Uh]cb`]a '; f]ZZ`ni 'VY\U`hYb''$

9]b'k Y]hYfYf'JcfZU``ž'XYf'X]Y'?ca d`YI]hÀh'XYf'G]W\Yf\Y]hg`U[Y']b?Ò'b'j YfXYi h`]W\hž'YfY][bYhY'g]W\'Ub'XYf'K ØfnVi f[Yf'GhfU» Yž'k cVY]'Y]bYf'?cbhfc``Y'Y]b'9]b\UbXa YggYf'g]W\Yf[YghY``h'k i fXY"'8]YgZØ\fhY'ni 'Y]bYf'GhfUZUbnY][Y'k Y[Yb'Y]bYg'JYfghc» Yg'[Y[Yb'XUgK UZZYb[YgYhn"'5i W\'VY]'XYf'?cbhfc``Y'Y]bYg': U\fnYi [g'Ui Z'XYfFc`g\cj Yf'GhfU» Y'ghY``hY'g]W\'Y]b'&%!'À\f][Yf': U\fYf'a]h'Y]bYa]fU_]gW\Yb': Ø\fYfgW\Y]b'j cfž'XYf''YXcW\'_Y]bY'[Ø`h][Y'9I!: U\fYf'Ui Vb]g'\UhhY'i bX'XYggYb': U\fnYi ['ni XYa 'b]W\h'j Yfg]W\YfhkUf"

?cbhfc``a U»bU\a Yb XYf Dc`]nY]

8]Y'Dc`]nY]'? O`b'ZØ\fh'fY[Y`a À»][Y'?cbhfc``Yb'Xi fW\ži a 'XYf 8fc[Yb!'i bX'K UZZYbg]hi Uh]cb']b'XYf'GhUXh'<Yff'ni 'k YfXYb"Fi bX i a 'XYb'GhUXh[UfhYb'i bX'XYb'K]YbYf'D`Uhn'k i fXYb']b'_ØfnYghYf NY]h']bg[YgUa h'**'DYfgcbYb'_cbhfc``]Yfh'i bX'j]Yf ; YZÀ\fXYfUbgdfUW\Yb'Xi fW\[YZØ\fh"N]j]`_fÀZhY'ghY``hYb'i bhYf UbXYfYa 'JYf_Ui ZgY]b\Y]hYb'7UbbUV]g'g]W\Yf'i bX'Yfa]hhY`hYb [Y[Yb'a i ha U»`]W\Y'8fc[YbXYU`Yf"'\#b'XYf'\#bbYbghUXh'k i fXYb ni XYa 'fi bX'(\$'DYfgcbYb_cbhfc``Yb'Xi fW\[YZØ\fhž'VY]'XYbYb 6YhÀi Vi b[ga]hhY`g]W\Yf[YghY``h'i bX'X]j YfgY'GhfUZUbnY][Ybž'k]Y Yhk U'k Y[Yb'8fc[Yb\UbXY`gž'[YZYfh][h'k i fXYb"

 $8]Y G]WXYfY]hg`U[Y']b'?O`b'YfZcfXYfh'Y]b'cZZYbYg'C \filbX\\ gWXbY``Y'A U*bU\a Yb''8]Y'Dc`]nY]'d`Ubhž'XYa 'ni bY\a YbXYb\\ HfYbX'XYf'8fc[Yb_f]a]bU`]hÀh'i bX'K UZZYbVYg]hn'Ui WX'k Y]hYf\]b\\ YbhgWX]YXYb'Ybh[Y[Ybni k]f_Yb''8]Y'Dc`]nY]'BFK'V]YhYh'XUVY] <math>\pm D$ Cfa Uh]cbYb'i bX'I bhYfghØhni b['ZØf'U``Y'k UZZYbfYWXh`]WXYb 5b`]Y[Ybži a 'X]Y'G]WXYf\Y]h']b'XYf'GhUXh'ni '[Yk À\f`Y]ghYb''

8 Y hU]`g	
Cfh	?Ò`b!?U`_ž'8Yi hgWX`UbX
EiY``Yb	• a cV]`"_ghU"XY
	_cY`b"dc`]nY]"bfk
	XY"ghUh]ghU"Wca

6Ygi WXYb G]Y ii bg Ui Z a Y]b!_cY`b bYh