

9d]gWXYf'A U\A!GWXbcfWXY`VcchgUi gZ`i [ni a 'GU]bhY!5bbY!A Uf]bY!BUh]cbU`dUf_ f&\$&&Ł

Jc``ghÀbX][YfGYmW.Y``Yb! \dgY`\@dZZ\\fYf`ni 'Y]bYa
i bj Yf[Ygg`]W.Yb`GW.bcfW.Y`Ui gZi ['a]h`XYa '6cch']a 'GU]bhY
5bbY`A Uf]bY`BUh]cbU``DUf_'j cb`A U\Y`Ui g"'9bhXYW_Yb`G]Y
X]Y`VYghYb`GW.bcfW.Y`d`AhnY`Ui Z`A U\Y`i bX`Yf_i bXYb`G]Y
\dgY``I k Y`Yb`k]Y`A cmYbbY` \dg`UbX`i bX`Fci bX` \dg`UbX"'5i Z`XYf
Gi W.Y`bUW.XYa 'VYghYb`GW.bcfW.Y`Yf`YVb]g`Ui Z`XYf` \dgY`
A U\A`Ui Z`XYb`GYmW.Y``Yb"'Gi W.Yb`G]Y`b]W.h`k Y]hYf`U`g`Y]bYb
6cchgUi gZi ['ni a 'GU]bhY`5bbY`A Uf]bY`BUh]cbU``DUf_"
8]YgYg`; YV]Yh`\Uh`XUg`fY]W.ghY`A YYfYg`YVYb`i bX
VY\YfVYf[h'\ØVYf`\%)\$::]gW.UfhYb`i bX`UbXYfY`[fc>\Ufh][Y
I bhYfk UggYf`YVYk YgYbZ'k Ug`Yg`ni a 'VYghYb
GW.bcfW.Y`d`Uhn`Ui Z`A U\A`a UW.h`\ddY'\dYgYa 'FY]gYZ\\fYf
YbhdUW_Y`]W.`U``YgZ'k Ug`G]Y`\ØVYf`Y]bY`Hci f`Xi fW.`XYb
GU]bhY!5bbY!A Uf]bY!BUh]cbU`dUf_'k]ggYb'/ Ua d\Y``]d/

Jc``ghÀbX][Yf'GYmWXY``Yb! \DY`\ØdZZØ\fYf'ni 'Y]bYa
i bj Yf[Ygg`]WXYb'GWXbcfWXY`Ui gZi ['a]h'XYa '6cch']a 'GU]bhY
5bbY'A Uf]bY'BUh]cbU``DUf_'j cb'A U\Y'Ui g"'9bhXYW_Yb'G]Y'X]Y
VYghYb'GWXbcfWXY`d`ÀhnY'Ui Z'A U\Y'i bX'Yf_i bXYb'G]Y
\DYY'A k Y`Yb'k]Y'A cmYbbY'\DY`DX'i bX'Fci bX'\DX''

5i Z'XYf'Gi WXY'bUWX 'XYa 'VYghYb'GWXbcfWXY'Yf'YVb]g'Ui Z'XYf'\DgY' A U\Â'Ui Z'XYb'GYmWXY''Yb"'Gi WXYb'G]Y'b]WXh'k Y]hYf'U`g'Y]bYb 6cchgUi gZi ['ni a 'GU]bhY'5bbY'A Uf]bY'BUh]cbU''DUf_"'8]YgYg ; YV]Yh'\Uh'XUg'fY]WXghY'A YYfYg'YVYb'i bX'VY\YfVYf[h'ØVYf'%) \$:]gWXUfhYb'i bX'UbXYfY'[fc»Ufh][Y'I bhYfk UggYf'YVYk YgYbž'k Ug Yg'ni a 'VYghYb'GWXbcfWXY'd'Uhn'Ui Z'A U\Å'a UWXh"

 ± 0.13]YgYa 'FY]gYZØ\fYf'YbhdUW_Y']W\'U``Ygž'k Ug'G]Y'ØVYf'Y]bY'Hcif

Xi fWX 'XYb 'GU]bhY!5bbY!A Uf]bY!BUh]cbU`dUf_'k]ggYb 'a ÒWX hYb" '\\\
[YVY 'H]ddg'ni f'6i WXi b['XYf'VYghYb '6cchgZU\fhYbž'k Ug'G]Y
Yfk UfhYh'i bX 'bUhØf`]WX ': chcg'j cb 'a Y]bYf'FY]gY"

. &]b & * $VYghYb 5_h]j]hAhYb]b A U$ $U h1 <math>bgY = GU]bhY! 5bbY! A Uf]bY! B Uh]cbU dUf_ 2$

A $U Y GWX bcfWX Y Ui gZi ['ni a 'GU]bhY '5bbY A Uf]bY 'B Uh]cbU `'DUf_$

8 Yf'VYghY'K Y[žia 'nia 'GU]bhY'5bbY'A Uf]bY'BUh]cbU`'DUf_'ni [Y`Ub[Yb'ibX'Y]bYb'ZUbhUgh]gW\Yb'HU['a]h'⊕gY`\ØdZYb'ibX GW\bcfW\Y`b'ni'[Yb]Y»Ybž']ghž'Y]bYb'5igZi['jcb'J]Whcf]U'Uig'ni ViW\Yb"

8]Y'a Y]ghYb'\dZUi gZØ[Y']b'XYb'A YYfYgdUf_'ghUfhYb bcfa U'Yfk Y]gY'j cb'A U\Y'A Uf]bY'7\UfhYf"'G]Y'Z]bXYb'X]Yg'bYVYb XYa 'GYmWXY``Yg'MUWXh'7`i V']b'J]Whcf]U"'K Ybb'G]Y'YXcWX'Y]bY FY]gY'cb`]bY'Vi WXYbž'Yf\U`hYb'G]Y'Ui WX'X]Y'5V\c`i b['i bX FØW_[UVY'j ca'i bX'ni a'<chY``j cb'ØVYfU```Ui Z'XYf'\dgY``A U\Å"

8]Y 'a Y]ghYb 'HU[YgUi gZØ[Y 'a]h 'XYa '6cch 'bY\a Yb 'Y]bY 'À\b`]W\Y Fci hY 'i bX '\U`hYb 'Ub 'a Y\fYfYb 'GW\bcfW\Y`d`ÀhnYb 'i bX '≠bgY`bž XUfi bhYf.

- 7YfZ'=g`UbX'FYYZ'fJYfgWX]YXYbY'GdchgŁ
- AcmYbbY! =bgY`
- FibXY'=bgY`

6i WXYb'G]Y']a 'JcfUi g. 'A U\Y. 'GW\bcfW\Y`!'i bX'6cchgUi gZi [U`h1 8fc\bYbZchc'XYg'GU]bhY!5bbY!A Uf]bY!BUh]cbU`dUf_g 2

8]Yi`h]a Uh]jYFY]gYfYggcifWYZØfX]YGYmWXY``Yb

5i Z'XYf'Gi W\Y'bUW\'a Y\f'GYmW\Y``Yb!FY]gYZØ\fYfb'i bX \pm gd]fUh]cb3'BUW\Zc`[YbX'Z]bXYb'G]Y'a Y]bY'i a ZUggYbXghYb FY]gYZØ\fYfž'X]Y' \pm bYb'U`g'[fc»Ufh][Y'FYggci fW''ZØf' \pm fY'FY]gY X]YbYb'k YfXYb"

') \$ '5_h]j]hÀhYb 'Ui Z'XYb 'GYmW\Y``Yb' 'GYmW\Y``Yb!
I bhYf_i bZhgZØ\fYf' '%, 'VYghY 'GhfÀbXY 'Ui Z'XYb 'GYmW\Y``Yb' '%\$
VYghY '\daggay`b 'Ui Z'XYb 'GYmW\Y``Yb' '%) 'VYghY 'K UbXYfi b[Yb'Ui Z'XYb'GYmW\Y``Yb

, VYf'XYb'GU]bhY!5bbY!A Uf]bY!BUh]cbU`dUf_

 $8 \ Yf'GU]bhY'5bbY'A Uf]bY'DUf_']ghY]b'BYhnk Yf_'Ui g'gYWkg' \# gY`b\check{z}Ui Z'XYbYb'G]Y'gWkbcfWkY`b\check{z}'K]`Xh]YfY'VYcVUWkhYb\check{z}'k UbXYfb'i bX]a '_f]ghU``_`UfYb'K UggYf'YbhgdUbbYb'_ÒbbYb''Ni 'X]YgYb' # bgY`b [Y\ÒfYb.$

- GhY '5bbY '=g`UbX
- =Y'AcmYbbY
- =Y'Ui | '7YfZ
- 7\UW\ÅY!\bgY`
- =`Y`FcbXY`fFibXY`=bgY`Ł
- $\bullet \hspace{0.2cm} \bullet \hspace{0.2cm} \bullet \hspace{0.2cm} \bullet \hspace{0.2cm} gY \hspace{0.2cm} \cdot \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} f \hspace{0.2cm} @\hspace{0.2cm} c\hspace{0.2cm} b\hspace{0.2cm} [\hspace{0.2cm} i\hspace{0.2cm} Y \hspace{0.2cm} \cdot \hspace{0.2cm} g\hspace{0.2cm} i\hspace{0.2cm} b\hspace{0.2cm} I \hspace{0.2cm} i\hspace{0.2cm} g\hspace{0.2cm} I \hspace{0.2cm} i\hspace{0.2cm} I \hspace{0.2cm} i\hspace{0.2cm} g\hspace{0.2cm} I \hspace{0.2cm} i\hspace{0.2cm} I \hspace{0.2cm} I \hspace$

6YghYg'GWXbcfWXY`b']b'AU\Y'

8]Y'GU]bhY'5bbY'A Uf]bY'BUh]cbU`'DUf_'Hci f']gh'XUg'VYghY GWXbcfWXY`Yf`YVb]gž'XUg'G]Y'Ui Z'A U\Y'i bX'j]Y``Y]WXh'gc[Uf'Ui Z U``Yb']bbYfYb'±bgY`b'XYf'GYmWXY``Yb'\UVYb'_ÒbbYb"

8 Yf YfghY 'C fh'Ui Z'i bgYfYf'A U\Y!GW\bcfW\Y`hci f'k Uf'Y]b
?cfU``Ybf]ZZ'Ui Z'XYf'K YghgY]hY'j cb'7YfZ'=g`UbX'fUi g[YgdfcW\Yb
Gi fZ Ł"'=\W\'j YfVfUW\hY'i b[YZ\\f'' \$'A]bi hYb'XUa]hž'ZfY]'ni
hUi W\Yb'i bX'X]Y'I bhYfk UggYfk Y`h'ni 'Yf_i bXYbž'k cVY]'Y]b][Y'XYf
h]YZYfYb'5VgW\b]hhY'XYg'F]ZZg'Ui Z'i b[YZ\\f'%\$!%\A YhYfb'`U[Yb"

9hk Ugž'XUgʻa]fʻk]f_`]W\ 'Y]bYb'dcg]h]j Yb'5i gV`]W_'[UVž'k Ufž'XUgg X]Y'h]YZYfYb'?cfU``YbZYW_Yb'j]Y`'[YgØbXYfʻk UfYb"'5i W\ 'X]Y': Ø``Yi bX'J]Y`ZU`h'Ub':]gW\Yb'i bX'A YYfYg`YVYk YgYb'k Uf VYY]bXfi W_YbX''I bhYb'g]bX'Y]b][Y': chcgž'X]Y']W\ 'VY]a GW\\bcfW\Y`b']a 'GU]bhY'5bbY'A Uf]bY'BUh]cbU``DUf_'[Ya UW\\h\\UVYž'XUa]h'G]Y'k]ggYbž'k Ug'G]Y'Ui Z' = fYf'Hci f'Yfk UfhYh'' U`h1 GW\\bcfW\Y`b']b'A U\\Åž'?cfU``Ybf]ZZY 2 U`h1 A U\Y'GW\\bcfW\Y`hci fž'GYf[YUbh'A U'cf':]g\ 2

6 Ygi WX XYf = bgY `A cmYbbY

8]Y'nk Y]hY'5b`Ui ZghY``Y'Ui Z'i bgYfYa '\dygY`\cdd]b[!HU[YgUi gZi [k Uf'Y]b'6Ygi WX'Ui Z'A cmYbbY'\dyg`UbX"'8]YgY'VYgcbXYfY'\dygY`\Uh Y]b'GWX]`X_fÒhYbni WXhdfc[fUa a ž'a Y\fYfY'K UbXYfk Y[Y'i bX'Y]bY Y]bn][Ufh][Y'; YgWX]WXhY"

8]Y + bgY ``]ghi b[YZÀ\f'- ž-'<Y_hUf'cXYf'&('5WfYg'[fc*'ibX'k Uf\]ghcf]gWX 'Y]bY 'Df]j Uh]bgY `":8Yf'VYa Yf_Ybgk YfhYghY'6Yk c\bYfi bX'6Yg]mYf'k Uf'XYf'gY\f'VYfØ\a hY'A f"'6fUbXcb'; f]a g\Uk "8]YgYg'i bj Yf\Y]fUhYhY'@YVYb'hYffUZcfa hY'A cmYbbY'=g`UbX'i bX VfUWXhY'a Y\fYfY'C VghVÀi a Y'i bX'Y]b\Y]a]gWXY'DZUbnYb'a]hž'i a]\a 'U'g'gY]bY'df]j UhY'C UgY'ni 'X]YbYb"'=bhYfYggUbhYfk Y]gY VfUWXhY'A f"'; f]a g\Uk 'Ui WX'a Y\fYfY'5`XYVfU!F]YgYbgWX]`X_fÒhYbUi Z'X]Y'=bgY`ž'j cb'XYbYb'X]Y'a Y]ghYb'bcWX'`YVYb" U'h1 6UVmF]YgYbgWX]`X_fÒhY'Ui Z'A cmYbbY'=g`UbXž'GU]bhY'5bbY A Uf]bY'BUh]cbU``DUf_ž'A U\Åž'GYmWXY``Yb 2 < Yi hY']gh'A cmYbbY'=g`UbX'HY]`'XYg'GU]bhY'5bbY'A Uf]bY'BUh]cbU``DUf_ž'UbX'HY]`'XYg'GU]bhY'5bbY'A Uf]bY'BUh]cbU``DUf_ž'UbX'HY]`'XYg'GU]bhY'5bbY'A Uf]bY'BUh]cbU`

Ui Z[Ya U`h" K]f`\UVYb j]Y``NY]h`XUa]h'j YfVfUW\hž`X]Y`K UbXYf! i bXB Uhi fd ZUXY`ni `Y]b][Yb [fc » Ufh][Yb 5i gg]W\hgdi b_hYb ni Yf_i bXYbž']a ; YgW\]W\hga i gYi a j cf`C fh`Yhk Ug'ØVYf`X]Y; YgW\]W\hY`XYf`\DZ\U\fYb i bX`U```X]Y'j]Y`Z\handa\h][Yb DZ\UbnYb i bX`H]YfY`ni `VYk i bXYfbž'X]Y`Ui Z'XYf`\DgY`ni `< Ui gY`g]bX"

9g'[]Vh'Ui W\'Y]b][Y'gW\ÒbY'UV[Y`Y[YbY'GhfÀbXY'Ui Z'A cmYbbYž X]Y'a]h'Y]b][Yb'XYf'VYfØ\a hYghYb'GhfÀbXY'j cb'A U\Y'k]Y'5bgY A U^cf' cb i ff]YfYb"

6Yj cf'k]f'X]Y'6cchga chcfYb'\cW\Zi\fYb'i bX'X]Y'A U\Y!
GW\bcfW\Y`hci f'ZcfhgYhnhYbž'\UhhYb'k]f'NY]hž'Y]b'ZUbhUgh]gW\Yg
hfUX]h]cbY``Yg'_fYc`]gW\Yg'66E!A]hhU[YggYb'ni '[Yb]Y» Ybž'XUg'j cb
i bgYfYa '6cchgZU\fYf'i bX'; i]XY'ni VYfY]hYh'k i fXY"

I bhYbʻg]bXʻY]b][Yʻk Y]hYfYʻ: chcgžʻX]Yʻ]WXʻUi ZʻXYfʻ≢bgY``A cmYbbY Ui Z[Ybca a Ybʻ\UVY"

U`h1 GhfUbX`Ui Z`A cmYbbY`=g`UbXž`GU]bhY`5bbY`A Uf]bY`BUh]cbU` DUf_ž`A U\Åž`GYmW\Y``Yb 2

U`h1 → bgY``AcmYbbYž'GU]bhY!5bbY!AUf]bY!BUh]cbU`dUf_ž'AU\ÅžGYmWXY``Yb2

U`h1 AcmYbbY'=g`UbX'6cchgZU\fh'UV'AU\Y 2

U`h1 : f]gWXYg'_fYc`]gWXYg'66E 'Ui Z'Y]bYa 'A U\Å!6cchgUi gZi [2

U`h1 K UbXYfk Y[!5i gg]W\hgdi b_h'Ui Z'A cmYbbY'=g`UbX 2

U`h1 GhfUbX'UiZ'XYf'±bgY`'AcmYbbY 2

6Ygi WX j cb F ci bX =g`UbX

 $BUWW `A cmYbbY' = g`UbX'VfUWW hY'i bg'i bgYf'6cchgZUVfYf'ni 'Y]b'dUUfk Y]hYfYb'[fc > Ufh][Yb'GWW bcfWW Y`d`AhnYb''K AVfYbX'GWW]`X_fOhYb cZh'j cfVY]n]YVbž'VUhhY']WW 'b]WW h'XUg'; `<math>\emptyset W_{Z}$ 'VY]'a Y]bYa '6Ygi WW Y]bY'ni 'gYVYb''' \Rightarrow W'' \Rightarrow W'' \Rightarrow W'' \Rightarrow W'' \Rightarrow W'' \Rightarrow W'' \Rightarrow UhhY']WW 'j]Y`a YVf':]gWW UfhYb'i bX'Y]bY f]Yg][Y'GWWi 'Y'j cb'GYf[YUbh!AU'cf!:]gWW Yb'gck]Y: `YXYfa Ui gZ]gWW Y'i bX'UbXYfY'5fhYbž'X]Y']b'?cfU``Ybf]ZZgmghYa Yb]a 'K Ygh]bX]gWW Yb'CnYUb'j YfVfY]hYh'g]bX''

6Yj cf'k]f'XYb'A YYfYgdUf_!5i gZi ['VYYbXYhYbž'a UW\hYb'k]f Y]bYb'`YhnhYb'< U`h'Ui Z'Fci bX'=g`UbX'f\in Y'FcbXY\!''8]Yg']gh'Y]bY k]bn][Y'\dgY`ž'Ui Z'XYf'G]Y'hUhgÀW\`]W\'V`Y]VYb'_\ObbYb'' U`h1 Fci bX'\dg`UbXž'\neq'Y'FcbXYž']a 'GU]bhY'5bbY'A Uf]bY'BUh]cbU` DUf_ž'GYmW\Y``Yb 2

 $U^1 : gWXYb^2GY^1UiZY]bYf^GWXbcfWXY^hcif^jcb^AUY^1Uig2$

5i ZYbh\U`h']a 'GU]bhY '5bbY 'A Uf]bY 'BUh]cbU` DUf

: Øf'X]Y Yb][Ybž'X]Y 'Ui Z' < c Wk nY]hgfY]gY 'g]bX 'c XYf'b UWk 'XYa
i `h]a Uh]j Yb 'df]j UhYb '\delta gY`i f`Ui V 'gi Wk Ybž'gc``hYb 'G]Y 'Ui Z'YXYb
: U```Y]bYb '5i ZYbh\ U`h']a 'GU]bhY '5bbY 'A Uf]bY 'B Uh]cbU``DUf_']b
6YhfUWk h'n]Y\Yb"'8 Ug'Ua 'VYghYb 'VYk YfhYhY 'df]j UhY '\delta gY`fYgcfh
\Y]» h'\lambda '9bWk UbhYX'\delta 'UbX'FYgcfh'Ui Z'Fci bX'\delta j'UbX"</pre>

8U']W\'X]Y'FY[]cb'[YfUXY'Ui Z'Y]bYa 'Y]bhÀ[][YbGW\bcfW\Y`Ui gZi ['VYgi W\hYž\UVY']W\'b]W\h']a 'FYgcfhØVYfbUW\hYh"'\#\X'_cbbhY'\YXcW\'Y]bYb'6`]W_'Ui Z'Y]b][Y'XYf9]bf]W\hi b[Yb'k YfZYb'i bX'gU[Yb'k]f'Y]bZUW\ž'g]Y'\UVYb'a]W\i a[Y\Ui Yb'

K Y]hYfY'l bhYf_i bZhgYa dZY\`i b[Yb'ZØf A U\Å'

A U\Y']gh'X]Y'< Ui dh]bgY``i bX'<Y]a Uh'j cb'J]Whcf]Už'XYf'< Ui dhghUXh XYf'GYmW\Y``Yb"'9g']gh'X]Y'[fò» hY'XYf']bbYfYb' \pm bgY`b'i bX'\Uh a Y\fYfY'[fc» Ufh][Y', VYfbUW\hi b[ga o[`]W_Y]hYb"'<]Yf']gh'Y]b_i fnYf'FY]gYZØ\fYf'a]h'Y]b][Yb'9a dZY\`i b[Yb"

Jc``ghÀbX][Yf'@Y]hZUXYb. '=\W\`\UVY'Y]bYb'i a ZUggYbXYb'@Y]hZUXYb
ZØf', VYfbUW\hi b[ga Ò[`]W_Y]hYb'Ui Z'A U\Å'[YgW\f]YVYbž'XYf'Y]bY
5i ZgW\`ØggY`i b['XYf'VYghYb'; Y[YbXYb'i bX'ZUbhUgh]gW\Y'FYgcfh!
i bX'<chY`Ya dZY\`i b[Yb'Ybh\À`h"

- J]Whcf]U'i bX'9XYb'=g`UbX'ZØf'XUg'BUW\h`YVYb
- 6YUi 'JU``cb'ZØf'GhfÀbXY'i bX'FYghUi fUbhg

• Df]j UhY \Rightarrow gY`b ZOf XUg i `h]a Uh]j Y \Rightarrow gY`Yf`YVb]g

6YghY'5i gk U\`

6YghY'K U\`'Ui Z'A U\A. '9XYb'6`Yi '< chY`'fPXYb'=g`UbXŁ

 $8 \ Ug`9XYb`6`Yi`< chY`]gh`Y]bY`XYf`VYghYb`I bhYf_ØbZhYž`k Ybb`G]Y`]bXYf`BA\Y`j cb`J]Whcf]U`i bX`Ui Z`9XYb`=g`UbX`gY]b`a OW&hYb"`9g`]ghY]b`YfghUi b`]W&Yg`a cXYfbYg`< chY``Ua `I ZYf`XYg dfYgh][YhfAW&h][Yb`>JW&h\UZYbg`j cb`9XYb`=g`UbX"$

6Ygi WXYf``]YVYb`XYb`±bZ]b]hm!Dcc`ž`X]Y`gUi VYfYbž`a cXYfbYb N]a a Yf`i bX`XUg`K Y`h_`UggY!FYghUi fUbh"'±WX`k Uf`ZØf'' 'BÀWXhY`]a 9XYb`6`i Y`<chY``i bX`Yg`k Uf`a Y]bY`@]YV`]b[gi bhYf_i bZh`Ui Z`XYb GYmWXY``Yb°

8]YgY'k i bXYfgW\\ObY'GhfUbXfYgcfh!'i bX'7Ug]bc!?ca V]bUh]cb V]YhYh'Y\Y[Ubh'Y]b[Yf]W\\hYhY'N]a a Yf'a]h'U\\Yb'9]bf]W\\hi b[Ybž'X]YG]Y'g]W\\bi f'k \ØbgW\\Yb'_\ObbYb''<]Yf'\Z]bXYb'\G]Y'Y]bYb'[fc\\Yb\\Dcc\ž'XfY]'FYghUi fUbhgž'Y]bY'\D]nnYf]Už'Y]b':]hbYggW\\bhYfž'Y]b'\D58 \Rightarrow\HUi W\\nYbhfi a 'i bX'Y]bYb'\HYbb]gd\\Uhn''

8]Y`@U[Y`]gh`[fc»Ufh][ž`XU`Yg`UVgY]hg`XYg`HfiVY`g`jcb`J]Whcf]U`a]h j]Y`Yb`gW\ÒbYb`GhfÀbXYb`ibX`FYghUifUbhg`]b`XYf`la[YVib[`]Y[h"

U`h1 6Yf'UmU'6YUi 'JU``cb'6Um'FYgcfh'i bX'7Ug]bcž'GYmW\Y``Yb 2 6i X[Yh!Ghi X]c'ZØf'GY`Vghi Yfgcf[Yf.'DfYW]ci g'FYg]XYbW

K Ybb 'G]Y 'A U\Y 'a]h'_`Y]bYa '6i X[Yh'Yf_i bXYb 'a ÒW\hYbž'XUbb ']gh Y]bY 'I bhYf_i bZh'a]h'GY`Vghj YfdZY[i b['X]Y 'VYghY 'K U\`"DfYW]ci g FYg]XYbWY ']gh'Y]b '5dUfha Ybh'a]h'Ui g[YnY]W\bYhYb '6Yk Yfhi b[Ybfl-ž) #%\$Ł'i bX'V]YhYh'6i X[Yh!5dUfha Ybhg'a]h'_cghYb`cgYa 'K @5Bž?`]a UUb`U[Y'i bX'Y]bYf'?ØW\YbnY]`Y'Ub'XYf'; fUbX'5bgYfK Ygh_ØghYŁ"

U`h1 DfYW]cig'FYg]XYbWY'GY`Z'7UhYf]b['FYgcfh'UiZ'XYf'±bgY`'AU\ÅŽGYmWXY``Yb2

5i Z'XYf'Gi WXY'bUWX 'XYa 'i `h]a Uh]j Yb'?i fni f`Ui V']a '♣X]gWXYb CnYUb3'8Ug'≯5'9bWXUbhYX'-€g`UbX'FYgcfh']gh'Y]b'a U_Y``cg'gWX ÒbYg FYgcfh'Ui Z'Y]bYf'k]bn][Yb'Df]j Uh]bgY``Ua ':i » Y'XYg'Gh"'5bbY A Uf]bY'DUf_"

 $8]Y J] ``Yb '] a 'ZfUb n Og] gWX Yb '? c`cb] U`gh] ``j YfZØ[Yb 'ØVYf 'Y] bY b df] j UhYb ' + b Z] b] hm! Dcc`ž Y] bY 'HYffUggY 'a]h DUbcfUa UV`] W_ 'i bX Y] bYb 'df] j UhYb ': i » k Y['ni a 'GhfUbX"'K Ybb 'G] Y 'Ui Z'XYf 'Gi WXY bUWX 'Y] bYa 'Y] bn] [Ufh] [Yb ': `] hhYfk c WXYbi f`Ui V 'g] bXž '] gh'X] Yg' <math>\Rightarrow$ fY VYghY 'K U\`"

U`h1 >J'9bW\UbhYX'FYgcfhž'l bhYf_i bZh'Ui Z'Y]bYf'Df]j Uh]bgY`'Ui ZXYf'=bgY`'A U\Y 2

5`hYfbUh]j Y. '6`Y]VYb'G]Y'Ui Z'XYf'a mghYf]ÒgYb' ≠bgY`'G]`\ci YhhYfk]`hcbŁ"

`U`h1 G]`\ciYhhY`=g`UbX`Df]jUhY`FYgcfhž'GYmW\Y``Yb2

K Y]hYfY: chcg'j ca 'A m'A U\Y GWX bcfWX Y`Ui gZ`i [

U`h1 GU]bhY!5bbY!=bqY`ž'X]Y'G9mW\Y``Yb 2

U`h1 AU\Å!6cchgUigZi[2

 $U^h1 < UZYb^ijcb^AUY2$

U`h1 A U\Y 6cchgUi gZi [HU[Yghci fžGYmWXY``Yb 2

U`h1 $A c m Y b b Y = g`Ub X \check{z} \cdot G Y m W X Y \cdot Y b 2$

 $U^h1 - 9XYb = g^UbXž^AU^A - 2$

U`h1 $GU]bhY!5bbY!AUf]bY!BUh]cbU`dUf_<math>\check{z}$ GYmW\Y``Yb 2

U`h1 AYYfYgdUf_'AU\Å 2

A $Y \setminus f \cdot GY mWX Y \cdot Yb \cdot F Y]gY ZØ \setminus fY f$

i bhYfbY\a Yb"'K Ybb'G]Y': fU[Yb'cXYf'BYi][_Y]hYb'ni a GW\bcfW\Y'b']b'A U\Yž'XYa 'A YYfYggW\i hndUf_ž'cXYf'ni a 'FY]gYb Ui Z'XYb'GYmW\Y``Yb']a '5``[Ya Y]bYb'\UVYbž'\]bhYf`UggYb'G]Y'V]hhY i bhYb'Y]bYb'?ca a YbhUf°

 $5bgcbghYbž'k Å fYbX'G]Y' \] Yf']b'a Y]bYa '6`c['g]bXž'gWkUi Yb'G]Y g]Wk'Y]b][Y'a Y]bYf'UbXYfYb'5fh]_Y`Ub"'<math>\Rightarrow$ W' \UVY'Ui gZØ\f`]Wk'ØVYf XUg'FY]gYb'Ui Z'A U\Yž'DfUg`]b'i bX'@U'8][iY'[YgWkf]YVYbž'i bX']Wk V]b'g]WkYfž'G]Y'k YfXYb'Yhk Ug'Z]bXYbž'XUg' \Rightarrow fY'5VYbhYi Yf'Ui Z'XYb GYmWkY``Yb']bgd]f]Yfh"

п

8 YhU]`g

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'Y]bY!fY]gY "XY