

GWX i hn 'XYg'@]a Yg. 'K]bX_fUZhd`ÀbY']b BYi k]YX'bYi 'VYk YfhYh

K]bX_fUZhd`ÀbY`]b`BYik]YX`ghY\Yb`j cf`< YfUi gZcfXYfi b[Yb. K Y`hYfVY`@]a Yg`gW\fÀb_h`Bi hni b[`Y]b"`GW\i hn`i bX K]bXYbYf[]Y`]a :: c_i g"

8 Yf'GW\i hn'XYg'K Y`hYfVYg'@]a Yg'VYY]bZi ggh'a U» [YV`]W\'X]Y K]bX_fUZhd`Ubi b[Yb']a '?fY]g'BYi k]YX"'9]b'[Ya Y]bgUa Yg'HfYZZYb j cb'9| dYfhYb'j YfXYi h`]W\hY'_Øfn`]W\'X]Y'< YfUi gZcfXYfi b[Yb'i bX 7\UbW\b'ZØf'X]Y'FY[]cb"

:: chc. GhUXhk Yf_Y BYi k]YX#, YfX BYi k]fh\

@YgYnY]h. & A]bi hYb

BUW\\U`h][Y'@Ògi b[Yb'[Ygi W\h

a '?fY]g'BYi k]YX'dfU``Yb'nk Y]'k]WXh][Y'N]Y`Y'Ui ZY]bUbXYf.'XYf 5i gVUi 'YfbYi YfVUfYf'9bYf[]Ybž'gdYn]Y``K]bX_fUZhž'i bX'XYf GWXi hn'XYg'I bYgWc!K Y`hYfVYg'@]a Yg"'6Y]'Y]bYa 'HfYZZYb'XYf GhUXhk Yf_Y'BYi k]YX'fGK BŁ'a]h'J YfhfYhYfb'XYg'8Yb_a U`gWXi hnYg k i fXY'XYi h`]WXž'k]Y'_ca d`YI 'X]YgY'H\Ya Uh]_']gh"'8Yf CVYf[Yfa Ub]gWX!FUYh]gWXY'@]a Yg'YfghfYW_h'g]WX'ØVYf'))\$?]`ca YhYf'i bX']gh'XUa]h'XUg'`Àb[ghY'8Yb_a U`'9i fcdUg"'GY]h'&\$\$)]gh'Yf'K Y`h_i `hi fYfVY'i bX'[Yb]Y» h'VYgcbXYfYb'GWXi hn"

GhUbXcfhY'ZØf'K]bX_fUZh'[Yf]b[ZØ[][fYXin]Yfh

8]Y'GhUXhk Yf_Y'BYi k]YX'\UhhYb'Ua V]h]cb]YfhY'D`ÀbY'ni f 9ff]Wkhi b['j cb'K]bXfÀXYfb']a '<Y]a VUWkYf'K U`X"'6Y]'XYf DfØZ b['XYf'GhUbXcfhY'k i fXY'YXcW\'_`Ufž'XUgg'X]Y'5bnU\``XYf a $\tilde{O}[`]WXYb'5b`U[Yb'UiZ''\%fYXin]Yfh'k YfXYb'a i gghY'''?UfhYb'a]h XYb'GWXihnncbYb'ZY\`hYb'i bg'V]g`Ub[ž'k Ug'X]Y'D`Ubi b['YfgWXk Yfh \Uh ž'Yf`Ài hYfh'<math>\approx$ gYd\]bY'B][[Ya Y]Yf'j cb'7UY`]ž'X]Y']b'XYa Dfc'Y_h'a]hUfVY]hYh'''6Y]'XYf'6Y[Y\i b[']a'K U`X'k UfYb'X]Y GWXihnj cfgWXf]ZhYb'XYg'@]a Yg']a': c_i gž'X]Y'_Y]bYb'6Ui'j cb K]bXfÀXYfb']b'XYf'?Yfb!'i bX'Di ZZYfncbY'Yf`Ui VYb''

HfYZZYb Ua < Y]XYb[fUVYb

8 UgʻHfYZZYbʻUaʻDUf_d`Uhnʻ< Y]XYb[fUVYbʻX]YbhYʻb]WkhʻbifʻXYf D`Ubi b[žʻgcbXYfbʻUi WkʻXYaʻ5i ghUi gWkʻØVYfʻa Ò[`]WkYʻ5bgÀhnY ni fʻ@Ògi b[ˈXYfʻ?cbZ]_hY" I bgYfʻN]Y`]ghʻYgžʻU``YʻDUfUa YhYfʻj ca K]bXʻØVYfʻX]YʻK U`Xei U`]hÀhʻV]gʻ\]bʻni fʻ; Y`ÀbXYVYgWkUZZYb\Y]hʻ ni 'VYfØW_g]Wkh][Yb žʻYf[ÀbnhʻA]WkUY``GWkfÒXYfʻj cbʻ7UY`]"'8]Y 9I dYfhYbʻa ØggYbʻg]WkYfghY``YbžʻXUggʻX]Yʻ9ff]Wkhi b[jj cb K]bX_fUZhUb`U[Ybʻ]aʻ9]b_`Ub[ia]hʻXYbʻVYgcbXYfYb

2 _c`c[]gWXY'JYfUbhk cfhi b[

9]b'k]Wkh][Yg'5f[iaYbh'ZØf'XYb'K]bX_fUZhUigVUi'V]`XYh'XYf
IakY`hgWkihn"'8]Y'GhUXhkYf_Y'BYik]YX'Yf\cZZYb'g]Wk'XifWk'X]Y
5b`U[Yb'Y]bY'bUWk\U`h][Y'9bYf[]YeiY``Yž'X]Y'XYb'ni_ØbZh][Yb
6YXUfZ'UVXYW_Yb'_Ubb"'8cWk'X]Y'<YfUigZcfXYfib['V`Y]Vh'[fc».
: ØbZ'5b`U[Yb'VYZ]bXYb'g]Wk'bib']b'XYf'DiZZYfncbYž'gcXUgg'nkY]
GhUbXcfhY'bUWk'fgh]Yfh'kYfXYb'aØggYb"'8]Y'g]Wk'V]YhYbXYb
5`hYfbUh]jYb'ghY\Yb'ibhYf'XYa'NY]WkYb'XYg'VYgcbXYfYb
5fhYbgWkihnYg'ibX'XYf';Y`ÀbXYghfi_hifž'Yf_`Àfh'B][[YaY]YfkY]hYf"

6`]W_'bUW\'j cfb

8]Y'dcg]h]j Y'BUWXf]WXh'ZØf'X]Y'GhUXhk Yf_Y']ghž'XUgg'X]Y j YfV`Y]VYbXYb'GhUbXcfhY'VYfY]hg'ØVYf'VYghY\YbXY'Ni ZU\fhgk Y[Y YffY]WXVUf'g]bX"' Gca]h'_ÒbbYb'k]f']a 'HfUbgdcfhdfcnYgg dfU_h]gWX'UfVY]hYbž'k Ug'XYb'6Ui 'Yf`Y]WXhYfh ž'a Y]bh'¬¬')Ub GWXYf\U['j cb'XYb'GhUXhk Yf_Yb"'8YbbcWX'V`Y]Vh'X]Y
< YfUi gZcfXYfi b[ž'XUgg'X]Y'VY]XYb'j YfgWXcVYbYb'5b`U[Yb'bi b
Ui Z'Df]j Uh[Y`ÀbXY'`]Y[Ybž'k Ug'VYXYi hYhž'XUgg'a Ub'k Y]hYfY
J Yf\UbX`i b[Yb'ZØ\fYb'a i gg"

9]bY:fU[Y:XYf:Df]cf]hÀhYb

± XYf'Ni _i bZh'k]fX'X]Y'f]W\h][Y'6U\UbW'nk]gW\Yb'XYa '5i gVUi j cb'K]bX_fUZh'i bX'XYa 'GW\i hn'XYg'K Y\hYfVYg'YbhgW\Y]XYbX gY]b"'8]Y'; YgdfÀW\Y'nY][Ybž'XUgg'U``Y'6YhY]`][hYb'[Yk]``h'g]bXž@Ògi b[Yb'ni 'Z]bXYbž'X]Y'gck c\``Ò_c`c[]gW\Y'U`g'Ui W\'gcn]U`Y 5gdY_hY'VYfØW_g]W\h][Yb"'8]Y'5i ggW\fY]Vi b['ØVYf'7UY`]'_Ubb bi b'VY[]bbYbž'i bX'dchYbn]Y``Y'5bV]YhYf'_ÒbbYb'g]W\'Ui Z'X]Y [YfY]b][hYb'GhUbXcfhY'VYk YfVYb"' 8]Y'?`Àfi b['j]Y`Yf': fU[Yb']a J cfZY`X'k]fX'XYb'; YbY\a][i b[gdfcnYgg'Yf`Y]W\hYfb ž'gW\`]Y»h B][[Ya Y]Yf'cdh]a]gh]gW\"

B 5;

8 YhU]`q

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