5a cb['h\Y'bchUV`Y'dfcdcqU`g']q'<6'&%%ž'k \]W\'qYY_q'hc fYXYZ|bY`k \Uh`Wcbgh]hi hYg`U` ZUfa `dfcXi Wh" `H\]g`Ua YbXa Ybh

WUd]hU``ZY`cb]Yg`UbX`a YbhU``\YU`h\`fYZcfa g"

D]bY``Ug'7ci bhmž': `cf]XUž'I G5'! 5g'h\Y'gi a a Yf'gi b'g\]bYg Xck b cb : `cf]XUžU Zi ffm cZ Y []q`Uh]j Y UWh]j]hm Wcbh]bi Yg hc g\UdY'h\Y'Gi bg\]bY'GhUhY"'Cb'\$bY'%' ž'&\$&) ž'hk Y`j Y'V]``g'k YfY gYbh'hc'; cj Yfbcf'Fcb'8YGUbh]g'Zcf'\]g'dchYbh]U`'g][b]b["'-Z'\Y []jYg`h\Y`bcXž`h\YgY`V]``g`k]```hU_Y`YZZYWh`cb`\$``m`%ž`U`cb[<u>g</u>]XY a cfY h\Ub', \$ ch\Yfd]YWgcZ`Y[]g`Uh]cb']bhfcXi WX h\]g'mYUf" H\Y'V]``g'WcjYf'U'k]XY'fUb[Y'cZ'giV'YWhgž'Zfca'ZUfa'dfcXiWhg'hc



9I d`cfY h\Y fYWbh`Y[]g`Uh]j Y XYj Y`cda Ybhg`]b D]bY``Ug 7ci bhm'Ug'; cj Yfbcf'Fcb'8YGUbh]g'Wcbg]XYfg'%&'d]j chU` V]``qžUXXfYqq]b['_Ym']qqi Yq'Zfca 'a YbhU``\YU`h\ hc U[f]W `hi fYž'YZZYWh]; Y 'i `m'%ž'&\$&) "

8 Y G U b h]g/, s' - /G][b U hi fY.

A YbhU`'<YU`h\ FYZcfa q

Wcbj]Wh]cbg``cca g``Uf[Yf'h\Ub'Yj Yf"

A cfYcj Yfž'h\Y'bYk ``Uk 'h\Uh'`ck Yfg'h\Y'fYei]fYa Ybh'Zcf'XYUh\ gYbhYbWYg^{*}Zfca ^{*}U^{*}i bUb]a ci g^{*}j YfX]Wh^{*}hc^{*}⁴ gh^{*}Y][\h^{*}ci h^{*}cZ^{*}hk Y^{*}j Y /i fcfg'a U_Yg': `cf]XU'h\Y'ghf]WhYgh'ghUhY'fY[UfX]b['WUd]hU` dib]g\a Ybh"`H\]g`U`hYfUh]cb`\Ug`gdiffYX`WcbZig]cb`fY[UfX]b[`]hg]a d`]WUh]cbg`cb`cb[c]b[`WUqYqž`UbX`k]h\`:`cf]XU`fUb_]b[`qYWcbX]b h\Y bUh]cb Zcf YI YW h]cbgž Wf]h]Wg k Ufb h\Uh h\Y f]g_ cZ k fcb[Zi `

CbY'cZ'h\Y'd]j chU``d]YWYg'cZ'`Y[]g`Uh]cbž'<ci gY'6]``'%*&+ž a UbXUhYg'h\Uh'h\Y': `cf]XU'Gi dfYa Y'7ci fh'YghUV`]g\'i b]Zcfa VcbX'fYWca a YbXUh]cbg'ghUhYk]XY"'H\]g``Uk 'fYghf]Whg``ck Yf'Wci fh 1 X[Yg'hc']bWfYUg]b['VU]`Ua ci bhg'cb`mž'di hh]b['U'WUd'cb'h\Y]f X]qWfYh]cbžk \]WX`\Ug`qdUf_YX`WcbWYfb`Ua cb[`Wf]h]Wg`UVci h dchYbh]U``bY[Uh]jY']a dUWhg'cb'Wca a i b]hm'h]Yg'UbX'h\Y'Wci fh gmghYa 'Ug'U'k \c`Y"'7f]h]Wg'Uf[iY'h\Uh']h'a Um'`YUX'hc'cjYfWfckXYX /U]`q`Uq`bYk `\YUf]b[`dfcWYgqYq`d]`Y`cb`UXX]h]cbU``Vi fXYbq"

 $5g^{k} Y^{X} = \frac{1}{2} Y^{Y} Y dY f^{h} bhc^{h} Y^{Y} []g^{U}] Y^{U} bX gW dY z^{h} g^{h} Uf X^{h} c$][bcfY`h\Y`gY]ga]Wg\]Zhg`]b`: `cf]XU g`Wf]a]bU``^i gh]Wf`gmghYa fYqi`h]b['Zfca'`Ukq'YbUWhYX']b'fYWYbh'qYqq]cbg"'+b'+UbiUfmž g][b]Z]WUbh`fYj]g]cbg`WUaY`hc`h\Y`ZcfYZfcbh"`H\YgY`]bWiXYX ghf]WhYf'dfYhf]U``XYhYbh]cb'[i]XY`]bYgž']bWfYUqYX'dYbU`h]Yg'Zcf WX]`X'qYI i U``UVi qYž'UbX'U``ck YfYX'h\fYq\c`X'Zcf'Udd`m]b['h\Y XYUh\ 'dYbU`hm" 'DUfh]W `Uf`m Wcbhfcj Yfg]U` ']g h\Y 'YI dUbg]cb 'cZ'h\Y XYUh\`dYbU`hm`hc`]bWiXY`Wcbj]Wh]cbg`Zcf`W\]`X`fUdYž`k \]W\ WXU``Yb[Yg'Y]]qh]b['GidfYaY'7cifh'dfYWYXYbh"

7f]a]bU` > gh]WY 7\Ub[Yg

YI dUbXg[·]h\Y[·]XYZ]b]h]cb[·]hc[·]]bWi XY[·]U[·]d[·]Ubhq[·]UbX[·]d[·]Ubh[·]dfcXi Whgž YZZYWh]jY`m'dfYjYbh]b[``cWU``[cjYfbaYbhq'Zfca`fY[i`Uh]b['ZUfa cdYfUh]cbg'cb'U[f]W' `hi fU```UbX"'5bch\Yf']a dcfhUbh'V]``ž'<6'*' 'ž WU``g'Zcf'fY[i`Uf'UiX]hg'cZ'VY\Uj]cfU`'\YU`h\'aUbU[]b['Ybh]h]Yg'Vm h\Y`8YdUfha YbhcZ7\]`XfYb`UbX`: Ua]`]Yqžh\YfYVmYbqi f]b[`h\Uh Ybh]h]Yg'dfcj]X]b['a YbhU`'\YU`h\ gYfj]WYg'cdYfUhY'dfcdYf`m"

Hi fb]b['hc 'h\Y'a YbhU``\YU`h\ 'UfYbUž'h\YfY g'dfca]g]b['bYk g'k]h\ fYWYbh'fYZcfa g'U]a YX'X]gh]bWhmUh'gi ddcfh]b[']bX]j]Xi U`g'k]h\]b h\Y'Wf]a]bU``^f gh]WY'gmghYa "'=b`5df]`ž'h\Y': `cf]XU'GYbUhY i bUb]a ci g`mUddfcj YX'U'V]```XYg][bYX'hc 'dfcj]XY'hfYUha Ybh fUh\Yf'h\Ub']bWUfWYfUh]cb'Zcf'h\cgY'gi ZZYf]b['Zfca 'a YbhU``]``bYgg" ?Ym'dfcj]g]cbg']bWi XY'YghUV`]g\]b['dfcVUh]cb'WcbX]h]cbg'UbX YI dUbX]b['hfU]b]b['dfc[fUa g'i bXYf'U'bYk '[fUbh']b]h]Uh]j Y"'H\]g fYZcfa ']g'dUfh]W' `Uf`m'dc][bUbhž'Ug']h'k Ug'bUa YX'UZhYf'Hf]gh]b A i fd\mž'U'mci b['a Ub'k \c'hfU[]WU``m'X]YX'Vm'gi]W]XY'k \]`Y]bWUfWYfUhYX']b'&\$&%'''<]g'a ch\Yf g'hYgh]a cbm'fY[UfX]b['a]ggYX cddcfhi b]h]Yg'Zcf']bhYfj Ybh]cb'\Ug'i bXYfgWcfYX'h\Y'i f[YbWncZ h\YqY'fYZcfa g''

H\Y'di fdcgY'cZ'h\]g``Y[]g`Uh]cb'[cYg'VYmcbX']a a YX]UhY hfYUha Ybh]h'U]a g'hc'VfYU_'h\Y'j]W]ci g'WhWY'cZ']bX]j]Xi U`g'k]h\ gYj YfY'a YbhU``]``bYggYg'fYdYUhYX`m'WhW]b['h\fci [\''U]`g'UbX Ya Yf[YbWn'fcca g"'H\YgY'fYZcfa g'fYWc[b]nY'h\Uh'a Ubm'cZ'h\YgY]bX]j]Xi U`g'bYYX'gi ddcfhž'bch'di b]g\a Ybhž'UbX'U]a 'hc']a d`Ya Ybh U'bYk 'a cXY``h\Uh'ZcW'gYg'cb'hfYUha Ybh"

#\g`WYUf`h\Uh': `cf]XU`ghUbXg`Uh'U`WfcggfcUXg`k]h\`h\YgY `Y[]g`Uh]j Y`W\Ub[Yg"`K]h\`h\Y`\cdYZi ``]XYU`h\Uh']a dfcj Ya Ybhg UfY`cb`h\Y`\cf]ncbž'dYcd`Y`UfY`YU[Yf`hc`gYY`\ck`h\YgY`V]``g i bZc`Xž'YgdYW]U``m`WcbWYfb]b[`h\Y`VfcUXYf`]a d`]WUh]cbg`h\Ym`k]`` \Uj Y`UWfcgg`h\Y`Wca a i b]hm"`5g`kY`Uk U]h'h\Y`; cj Yfbcf g XYW]g]cbgž'h\Y`WcW_`]g`h]W_]b[`Xck b`hc`i `m`%ž`k\Yb`: `cf]XU`Wci `X ghYd`]bhc`U`bYk`YfU`cZ'dc`]Wn`UbX`fYZcfa "

: cf'a cfY'XYhU]`g'cb'h\Y``Y[]g`Uh]cb'a cj]b['h\fci[\`:`cf]XUž'7`]W_ Cf`UbXc'fYdcfhg'h\Uh'h\YgY'bYk'V]``g'UfY'gYh'hc'fYg\UdY'jUf]cig gYWhcfg'UWfcgg'h\Y'ghUhY'''7cbjYfgY`mž'hc'YId`cfY'h\Y'XfUaUh]W g\]Zhg'k]h\]b'h\Y'Wf]a]bU``f gh]Wf'gmghYa ž'H\Y'5``][Uhcf'cZZYfg]bg][\hg']bhc'h\Y'fYWfbh'WLUb[Yg''@Ugh`mž'Zcf'Ub']b!XYdh\``cc_'Uh aYbhU``\YU`h\'fYZcfagž'K 7HJ'g\YXg'`][\h'cb'h\Y'YZZcfhg'VY]b[aUXY'hc']adfcjY'hfYUhaYbh'UddfcUWXYg''

8 Y hU]`g	
Cfh	D]bY``Ug'7cibhmž': `cf]XUž'IG5
EiY``Yb	• k k k "W]W_cf`UbXc"Wca
	• k k k "U``][Uhcf"cf[
	• k k k "k Whj "hj

6Ygi WXYb'G]Y'i bg'Ui Z.'a Y]b!k]Yb"bYh