\$-"`≯b]`&\$&)

Cf`UbXc'6`cca/, \$' - /g`hYUW'd`dccX`Yž'6][[]Y`GaU``gž \iacfcig`m`]bhYffidhYX`\]g'/eich/HcXUm/eich/`g\ck]bhYfj]Yk`X]gW'gg]b[`\]g`bYk`Z]`a"



Cf`UbXcži b]hYX`GhUhYg'!`Cf`UbXc'6`cca 'Vfci [\h'U`XY`][\hZ` hci W\'cZ'W\Ucg'hc'h\Y`HcXUm'g\ck'YUf`]Yf'hcXUm'k \Yb'\]g'ZY]ghm hYUW d'dccX`Yž'6][[]Y`Ga U``gž'ghc`Y'h\Y`gdch`][\h'Xi f]b[`\]g]bhYfj]Yk 'k]h\'GUj UbbU\'; i h\f]Y"'6`cca 'k Ug'X]gW gg]b[`\]g]``i ghf]ci g'WUfYYfž']bWi X]b[`\]g']Wcb]Wfc`Y`Ug`@Y[c`Ug']b` H\Y @cfX`cZ'h\Y`F]b[gž 'k \Yb'h\Y``]hYY'dccW\'VY[Ub`VUf_]b[Ybh\i g]Ugh]WU``mcZZIWJa YfUž'a i W\'hc'Yj YfmcbY g'Ua i gYa Ybh" H\Y`UXcfUV`Y`a ca Ybh'hi fbYX`]bhc'ei]hY`h\Y`gdYWhUWYž'k]h\ 6`cca `]bhfcXi W]b[`6][[]Y`hc'h\Y`Ui X]YbWY`UbX`g\Uf]b[`h\Uh`\Y hU_Yg'h\Y`Xc[`Yj Yfmk \YfY`\Y`[cYg"`Hmd]WU``m'ei]Yhž'6][[]Y gYYa YX`hc'VY`[fUdd`]b[`k]h\`U`WUgY`cZ'gYdUfUh]cb`UbI]Yhm'hcXUmž U'fY`UhUV`Y`ghfi [[`Y`Ug'6`cca `XYgWf]VYX`\]a 'Ug'\]g' Ya ch]cbU` gi ddcfh'Ub]a U``UbX`8U_chU'≈\bgcbž'k \c`k Ug'cZZ!ghU[Yž

8Yqd]hY`h\Y`dUqh`\YUfhUW\Yž6`cca `Wcbh]biYq`hc`qiffcibX \]a_gY`Z`k_]h\``cj_Yž`Vch\`Zfca_`\]g`dYhg`UbX`\]g`[_fck_]b[_`ZUa_]`m"`<Y UbX DYffm UfY h\f] YX hc Ya VfUW dUfYbh\ccXžg\Uf]b[]b h\Y]f ^ci fbYm'hc[Yh\Yf'k \]`Y'bi fhi f]b['h\Y]f'bYk Zci bX``cj Y'Zcf'6][[]Y" 5g'k Y'a cj Y'Zcfk UfXž']h'gYYa g'h\YfY g'bch\]b['ei]hY'`]_Y'h\Y WcadUb]cbg\]d`cZ`U`Zcif!`Y[[YX`Zf]YbX`hc``][\hYb`h\Y``cUX`UbX Vf]b[`^cmž'Vch\`cb!gWfYYb`UbX`cZZ"`DYf\Udg`h\Uhg`k \m`k \Yb 6][[]Y`XYW]XYX`hc`a U_Y`Ub`i bgWXYXi `YX`WUa Yc`cb`U]fž`]h`ZY`h`U

cb`]bY"H\YGibfYdcfhg"

K \]`Y`hcXUmg`Ubh]Wa`k Ufa YX`\YUfhqž`]hg`]a dcfhUbh`hc`fYZYWh`cb U'a cfY'gca VYf'W\UdhYf']b'6`cca g``]ZY"'<Y'UbX'\]g'dUfhbYfž'?Uhm DYffmžZUWXXX]ghfYggk\Ybh\Y]fdfYj]cighYUWddccX`YžA][\hmž k Ybh'a]gg]b[']b'\$`m'&\$&\$"'5ZhYf'U'XYgdYfUhY'k YY_!`cb['gYUfW\ž $k \setminus W = b \cdot (Y \times V) + b \cdot (Y \times V) + b \cdot (Y \times V)$ `cgh'Xc['dcghYfgž'h\Y'Wcid`Y'ZcibX'A][\hmg'Wc``Ufž'fYjYU`]b['h\Y \YUfhVfYU_]b[bYk g`h\Uh`\Y`\UX`X]YX"6`cca a Ya cf]U`]nYX`\]g `cgh'WcadUb]cb'k]h\'U'\YUfhZY`h'hUhhcc'VYUf]b['A][\hmg'bUaY Wcid`YX`k]h\`Ub`UWY`cZ`gdUXYg`gmaVc``cjYf`\]g`\YUfh"`<Y`VfUjY`m fYWU``YX`h\Y'YIdYf]YbWY`Ug`U` kU_]b[`b][\ha UfYž `YIdfYqq]b[`\]q [fUh]hi XY hc bY][\Vcfg k \c gi ddcfhYX h\Y gYUfW žUbX h\Y WeidYhe[Yh\Yfq\UfYXh\Y]f[f]YZcjYfh\]g`cgg'k]h\ZUbg

5 Hfci V`]b[DUgh

H\]g`k Ugb h'1 gh'Ubm'cfX]bUfm'UddYUfUbW/"'6`cca 'k Ug'U`gc'h\YfY hc W/Uh U/ci h /]g b Yk a cj]Yž H/Y 7i hž k /YfY / Y dcfhfUmg Ub f]q\`VcI Yf"`<ck Yj Yfž`]h`qYYa YX`h\Uh`6][[]Y`\UX`ch\Yf`]XYUqž VUf_]b[`U[U]b`UbX`^c`h]b[`h\Y`WcbjYfgUh]cb`VUW_`hc`\]a "`I bXYf h\Y'd`UmZi``VUbhYf'UVcih'6][[]Yž'; ih\f]Y'\ia cfciq`m'qi[[YqhYX h\Uh'∞\bgcb'g\ci`X'Wcbg]XYf'Z]bX]b['U'bYk'ckbYf'Zcf'h\Y YI WhUV`Y`di dž`dfca dh]b[``Ui [\q`U```Ufci bX"'5```h\Y`k \]`Yž`6`cca YI dfYggYX`\]g`[fUh]hi XY`hc`xc\bgcb`Zcf`\Yf`\Y`d`]b`k fUb[`]b[6][[]Y 'VUW_ ']bhc '\]g Ufa gž Z fh\ Yf gc `]X]Zm]b['h\ Y 'VcbX 'h\]g ghUf! ghi XXYX WfYk `\Ug`k]h\`h\Y]f'VY`cj YX`dYhg"HcXUm`fYdcfhg"

Bck fYdcfhg"

d`UmZi ``m'Xi VVYX'\]a 'h\Y' bUbbm 'cZ'h\Y'XUm"9bhYfhU]ba Ybh

`]hh`Y``]_Y`U`Xc[![cbY`[ccX`h]a Y`Zcf`YjYfmcbY`kUhW&]b[°

8 Y hU]`g	
Cfh	Cf`UbXcž'lb]hYX'GhUhYg
EiY``Yb	• YbhYfhU]ba Ybhbck "Wca
	• k k k "hc X Um"Wć a
	• k k k "h∖Y!gi b"Wca

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