

GhUXhj YfcfXbYhYf 6YfbX < cddY. < UZhghfUZY k Y[Yb I bhfYi Y fYWX hg_fÀZh][

8 Y f '? UggY`Y f 'GhUX hj Y f c f X b Y hY '6 Y f b X '< c d d Y 'k] f X 'j c b 'Y] b Y a 5a hgUfnh 'Ui Z'gY] b Y '< UZhZÀ\][_Y] h '[Y d f Ø Zhž 'b UWX X Y a 'gY] b I f hY]` 'f Y WX hg_f À Zh][']gh"

6YfbX'<cddY.'9]b': U``ZØf'XYb'FYWX hgghUUh

8]Y'fYWkh`]WkYb'<YfUi gZcfXYfi b[Yb'i a 'XYb'?UggY`Yf GhUXhj YfcfXbYhYb'6YfbX'<cddY'k YfZYb'Y]b'GWk`U[`]Wkh'Ui Z'X]Y
\$\phY[f]h\and h']bbYf\U`V'XYf'?ca a i bU`dc`]h]_"'8Yf': U``\z'XYf'gWkcb'gY]h
a Y\fYfYb'\nt\fYb']a ': c_i g'ghY\h\z']gh'bi b'a]h'Y]bYa 'I fhY]`'XYg
?UggY`Yf'@UbX[Yf]Wkhg'UV[YgWk`cggYb\z'XUg'<cddY'kY[Yb'I bhfYi Y i bX'GhYi Yf\]bhYfn]Y\i b['ni 'Y]bYf': fY]\Y]hgghfUZY'j cb'nk Y]\thYb i bX'XfY]'A cbUhYb'j Yfi fhY]`h'\Uh''K \and \fYbX'X]YgY'9bhgWkY]Xi b[fYWkhg_f\and Zh][']gh\z'V`Y]Vh'X]Y': fU[Y'bUWk'XYf'k U\fYb j YfUbhk cfhi b[gj c``Yb'5a hgZØ\fi b[']a 'FUi a 'ghY\Yb''

8]YfYWh]WXYb; fibX`U[Yb

 $6YfbX' < cddY\check{z}'Y \setminus Ya U \hat{g}'U \hat{g}'F YWW hgUbk U \hat{h}'h \hat{h}h][\text{ if } bX'bi b \text{ } = a \text{ } Yf\check{z} \\ k \text{ if } fXY'k Y[Yb'k]YXYf \setminus c \hat{h}Yf'J Yfi bhfYi i b['j cb'A UbXUbhYb[Y`XYfb i bX'GhYi Yf\]bhYfn]Y \ i b['j Yfi fhY] \hat{h}'' 8]Y'GhfUZYb \check{z}'X]Y'g]WW'Ui g Y]bYf'FY] \ Y'j cb'J Yf[Y\Yb'Yf[YVYb \check{z}'k YfZYb'Y]b'@]WW h'Ui Z'X]Y DfcV`Ya Uh]_'XYf'J YfUbhk cfh`]WW_Y]h'i bX'XYf': c`[Yb'ZØf'Y]bYb 5a hghfA[Yf''@Ui h'XYb'fYWW h`]WW Yb'; fi bX`U[Yb'j Yf`]Yfh'Ya UbX bi f'XUbb'ZØf'Y]bY'8Ui Yf'j cb'ZØbZ'\J\fYb'X]Y': \handle \hat{A}][_Y]h\bar{z}'Y]b \ OZZYbh`]WWYg'5a h'ni 'VY_`Y]XYb \bar{z}'k Ybb'Yf'k Y[Yb'Y]bYg JYfVfYWWYbg'j Yfi fhY] \hat{h}'k]fX''' < cddY'\]b[Y[Yb'k i fXY'ZØf JYf[Y\Yb'j Yfi fhY] \hat{h}'z gc XUgg'gY]bY'dc`]h]gWWY'? Uff]YfY'h\YcfYh]gWW i bVYY]bZi ggh'V`Y]VYb'_ObbhY''$

8 Ug; Yf]WX hgi fhY]`i b X X]Y U_hi Y``Yb 9bhk]W_`i b[Yb

BUWW. XYf I fhY] `gj Yf_ØbXi b[`]a `8 YnYa VYf `&\$&' `k Uf '<cddY ni bÀW gh]a `6 YghfY VYbž [Y[Yb `XUg I fhY] `F Yj]g]cb `Y]bni `Y[Yb " 8] YgY `k i fXY `YXc W `j ca `6 i bXYg[Yf] W hg\c Z `]a `A U] `&\$&(UV[Yk]YgYbž `gc XUgg `XUg I fhY] `fYW hg_fÀZh][`k i fXY " 8 Ybbc W `]gh Yf V]g\Yf `XYf `GhfUZ\UZh `b] W h `bUW [Y_ca a Yb " '9]b `GdfY W Yf `XYf GhUUhgUbk U`hgW UZh ? UggY `VYghÀh][hYž `XUgg `X]Y `DfØZ b[`gY]bYf [Ygi bX\Y]h`] W Yb `J c ``ni [ghUi [`]WX_Y]h `bi b `Xi fW Y]bYb `5a hgUfnh YfZc `[Yb `a i ggž `bUW XYa '<cddY [Ygi bX\Y]h`] W Y; fØbXY `ni f \$VgU[Y `gY]bYg `< UZhUbhf]hhg 'j cf[YVfUW h`\Uh"

8]Y 5i gk]f_i b[Yb Ui Z X]Y ? ca a i bU`dc`]h]_

 $8]Y G]hi Uh]cb ``Uh'XUg'DchYbn]U`žX]Y ``OZZYbh`]WXY `K U\fbY\a i b[XYf'?ca a i bU`dc`]h]_ `ni 'j YfÀbXYfb" `CVk c\``fYWXh`]WX UV[Yg]WXYfhž'_ObbhY' < cddYg'JYfV`Y]V `]a 'GhUXhdUf`Ua Ybh'XUg JYfhfUi Yb'XYf'6Øf[Yf']b'X]Y'dc`]h]gWXYb' <math>\Rightarrow$ bgh]hi h]cbYb'YfgWXØhhYfb" $8]Y GhUXhj YfcfXbYhYbj cfghY\Yf]b'A Ufh]bU'j Ub'XYb' < Oj Y`! < UbYa Ubb'Yf_`AfhYžXUgg'YXk YXY'9bhgWXY]Xi b['ØVYf' < cddYg JYfV`Y]V'b]WXh']b']\fYb' < AbXYb'`]Y[Y''G]Y'j Yfk Y]gh'Ui Z'X]Y': fU[Yb XYf' <math>\Rightarrow$ bhY[f]hÀh'i bX'XYf'a cfU`]gWXYb'JYfUbhk cfhi b[ž'X]Y''YXYf 5a hghfÀ[Yf'ni 'hfU[Yb'\Uh'']

9fgWk YfhY?caaib]_Uh]cb

8]Y '? ca a i b]_Uh]cb'j cb'6YfbX'<cddY'VYnØ[`]W\'XYf'U_hi Y``Yb
9bhk]W_`i b[Yb'V`Y]Vh'gW\k]Yf]["'JYfgi W\Y'XYf'DfYggYž']\b'ni
Y]bYf'GhY``i b[bU\a Y'ni 'YffY]W\Ybž'k UfYb'b]W\h'YfZc`[fY]W\"'8]Yg
ZØ\fh'ni 'k Y]hYfYb'GdY_i `Uh]cbYb'i bX'Yf\Ò\h'XUg'+bhYfYggY'XYf
2 ZZYbh`]W_Y]h'Ub'X]YgYa ': U``"

 8 Y hU]`g

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'b!U["XY