

; GA!Gi ddcfh'i `"'8cVfY[c'DUghYfnU'%\$&#) ž' %! (%* '?fU_Œk a cV]`Y'Ž(, '*\$, %\$+()) ž'B=D', %' ''), *\$- 'F9; CB.'%, %\$, %' '(k k k "[ga!gi ddcfh'bYh

5XUdhcf 5H: 'J &' (]b%' >H5; '#'9A A 7 '#'=GD'#'A A 7 '7UfX





5XUdhYf`9A A 7`5H: `J &`(]b%`]g`UXUdhYf`U``ck g`mci `hc`i gY`gdYVlJU``Zl bWh]cbg`k]h\`mci f`5H: `6cl ž`5H: `@][\hb]b[`cf`5H: `B]hfc"`H\Yg ZYUhi fYg`]bWi XY. `>H5; `#`9A A 7`#`=GD`#'A A 7`7'5F.8"

:ibWh]cbg.

%"`>H5; 'J]U'A c`YI

 $\label{eq:main_self_self_self} $$ Mb^{-1} gY^hY^- + 5; \ Z bWh] cb^{-1} gY^hY^- + 5; \ Z bWh] cb^{-1} GCl^{-1} bYh^{-1} g^{-1} h^{-1} b^{-1} b^{-1} b^{-1} b^{-1} gY^- + 5; \ Z bWh] cb^{-1} gY^{-1} + 15; \ Z bWh] cb^{-1} gY^- + 15; \ Z bWh] cb^{-1} gY^-$

 $7cbbYWh'Ub': D7'f]VVcb'hc'mci f'UXUdhYfz'h\Yb'WcbbYWh'h\Y'* \%$\#) \%$'WcbbYWhcf'hc'h\Y'f]VVcb'UbX'i `h]a UhY`m'hc'h\Y'VcUfX'cZ'h\Yd\cbY'j]U'a c'Yl 'dcfh''$

&"'9A A 7'8]fYWh

Mci 'WUb'i gY'h\Y'6; 5'D76G'hc'X]fYWhFYUX'#'K f]hY'9a a Wi g]b['h\]g'UXUdhYf'k]h\'5H: '>H5; 'D@ G'gcZhk UfY"

' "'A A 7 '7UfX

 $\label{eq:linear_model} \textbf{Mci 'WWb'i gY'h} \] g`5XUdhYf`hc`Vfi hY`ZcfWY`AA7`7UfXg`UbX`WfYUhY`gdYW]U``AA7`7UfXg$

("'>H5; '#'=GD'#'9A A 7'8]fYWh'Gc`XYf]b[

 $\label{eq:linear_model} \textbf{Mci: WUb:i: gY:h}.] g: 5XUdhYf: UbX: gc: XYf:k:]fYg: X]fYVM: fc: d \ cbY: D78: Zcf: >H5; : FYdU]f: Ugk: Y:: Ug: =GD: UbX: 9A: A: 7:8]fYVM: FYdU=F'' = GD: UbX: 9A: A: 7$

HYW\b]\W\`=a dfcj Ya Ybhg'cZ'5H: !J &'J Yfg]cb

H\Y'Gk]hWX'CB'1 'Ghfcb['DI @@ID'FYg]ghcfg'k]``VY'Udd`]YX'hc'YAA7'7A8'fl6@| 9E'UbX'85H5'fl F99BE'@]bYg"
!!!2'H\]g']g'j Yfmi gYZ ```Zcf'd\cbYg'h\Uh'fYei]fY'J WWE 'UbX'J WWDck Yf'7cbbYWf]cbg'flGUa gi b[ž'<H7'YhWEC:::1'DI @@ID'FYg]ghcfg'K =@BCH'VY'i gYX"

!!!2 'H\]g']g'bcfa U``mXcbY'k]h\'Bc_]U'@ a]U'D\cbYg'k\]W\'XcYg'bch'fYei]fY'J WWE 'UbX'J WW7cbbYWh]cbg : cf'U'a cfY'ghUV'Y'WcbbYWh]cbz'gYh'gk]hW\'hc'"CB"'UbX'a U_Y'gi fY'hc'WcbbYWh'fYei]fYX'dckYf'hc'J WWE 'UbX'J WW@]bYg



Jc`hU[Y'>i a dYf': cf'A]Wfc'G8'7UfXg

' "' j '1 'A cgh'BYk #C'X'A]Wfc'G8 '7UfXg'UfY'7ca dUh]V'Y'k]h\ '' "' j 'J WW %", J '1 'K Y'\Uj Y'dfYdUfYX'U'%", j 'J WWZcf': i hi fY'@ck ! Dck YfYX'A]Wfc'G8 '7UfXg

• 9A A 7 '>i a dYf

O cf`YA A 7 I gY 'Cb`mQ B 7 `1 `GYWtbXUfm'7@C 7? `k]```bch'VY`i gYX`Zcf`YA A 7 `7ca a i b]\Wh]cb 7 @ &:1 `GYWtbXUfm'7@C 7? `k]```VY`i gYX`Zcf`YA A 7 `7ca a i b]\Wh]cb

 $K \ Yb `UXUdhYf `]g `i gYX `Zcf `U `BCB! 9A A 7 `7cbbYWh]cb `gi WX `Ug `>H5; `cf `A]Wfc `G8 `7UfXž `a U_Y `gi fY `h\]g `8=D `Gk]hWX `]g cb `h\ Y ``B7 `` Dcg]h]cb "`7@? & [g `BCH `F9EI =F98 `Zcf `a cgh`YA A 7 `7\]dgž `Vi h`gYhh]b[`8=D `GK =H7 < `hc `7@? & k]```[]j Y mci `U `ghfcb[Yf `7@? `fF98Ł `G][bU ``Zcf `VYhhYf `YA A 7 `7ca a i b]\Wh]cb "$

Bc_]U'X]gUggYa V`mhcc`']bWi XYX

7ca dUh]V]`]hm

- 5H: '6cl
- 5H: '@][\hb]b[
- 5H: 'B]hfc

GYh'WcbhU]bg.



- %'L'CZZJWJU`'5H: 'JYfg]cb'&'5```]b'%'5XUdhYf'Zcf'5H: '6cl
- %'L'GYhcZ'7c'ci fYX'>H5; 'K]fYg
- ' 'L ': D7 'F]VVcb '7 UV 'Yg
- %'L'@a]U') %\$'#'* %\$'7cbbYWhcf
- %'L'Ac'Yl'dcfh'Zcf'@a]U'*%\$#) %\$'fbYYXYX'VYWUigY'gcaY'*%\$'#') %\$'Xc'bch'\UjY'ac'Yl'U'fYUXmcbVcUfXŁ
- &'L'6; 5'D76
- VEL 'BC_]U'a]b]'cdYb]b['hcc``_]h'WtbhJ]b]b[.

 VEM_L'@YUJ Yf'#'CdYbYf'Zcf'Bc_]U'X]gUggYa V`m

 VEM_L'GWfYk Xf]j Yf'Zcf'Bc_]U'X]gUggYa V`m

 VEM_L'D'Ugh]WcdYb]b['d]W_g'Zcf'Bc_]U'X]gUggYa V`m

 VEM_L'GI Wf]cb'W d

UPPORT

¥ &\$&& k k k "[ga !gi ddcfh"bYh

