

GhÒfWX Y'_Y\fYb'bUWX'F]YgU'ni fØW_. BYi Yg'BYgh'Ui Z'GdUf_UggY°

F]YgUž'8Yi hgWX`UbX`!'8]Y`FØW__Y\f`XYf`K Y]» ghÒfWXY`]b`F]YgU
V]YhYh'; fi bX`ni f': fYi XY`ZØf`X]Y`BUhi fVYcVUWXhYf`XYf`FY[]cb"'8Yf
bYi 'Yff]WXhYhY`<cfgh'Ui Z'XYa '8UWX`XYf`GdUf_UggY`k]fX`VYfY]hg
j cb'Y]bYa 'K Y]» ghcfWX`VYk c\bh"'C`UZ'; Ua V_Yž'XYf
GhcfWXYbVYUi ZhfU[hY`]a '5`h_fY]g`F]YgUž'VYghÀh][h`X]YgY`dcg]h]j Y
9bhk]W_`i b['i bX`\YVh`\Yfj cfž'XUgg`X]Y`ZfØ\nY]h][Y`6YgYhni b['XYg
<cfghYg`Y]b`[i hYg`NY]WXYb`XUfghY``h"'8]YgY`6YgYhni b['K]fX`YXcWX
j cb`XYf`HUhgUWXY`ØVYfgWXUhhYhž'XUgg`]b`XYf`FY[]cb`j]Y`Y`GhÒfWXY
bcWX`b]WXh`Ub[Y_ca a Yb`g]bX`i bX`X]Y`6YgYhni b['XYf`BYghYf
]bg[YgUa h`[Yf]b[']gh"'5i gbU\a Yb`V]`XYb`X]Y`; fc»Yb\U]bYf
GhÒfWXYž'X]Y`Ua '&' "': YVfi Uf`]a '8cddY`dUW_']b`]\fY`U`hY`<Y]a Uh
ni fØW__Y\fhYb"

8 Yf'bYi Y'< cfgh'k Uf'bchk YbX]['[Yk cfXYbž'bUWXYa 'XYf Y]bghi fn[YZÀ\fXYhY'GWXcfbghY]bž'XYf'ni j cf'U`g'B]ghd`Uhn'X]YbhYž UV[Yf]ggYb'k YfXYb'a i gghY"'5`g', VYf[Ub[g`Ògi b['k]fX'V]g'&\$&* Y]b';]hhYfa Ugh'Yff]WXhYh"'C V'X]Y'GhÒfWXY'YfZc`[fY]WX'VfØhYb k YfXYbž'k]fX'g]WX'Yfgh'UV'A]hhY'A Àfn'nY][Ybž'XU'V]g'XU\]b'k Y]hYfY GhÒfWXY'Yfk UfhYh'k YfXYb"

8]Y Ni [fci hYb XYf K Y]» ghÒf W Y

8]Y'VYfY]hg'Ubk YgYbXYb'K Y]» ghÒfW\Y'g]bX'ØVYf'X]Y'K Yghfci hY Ui g'F]W\hi b['GdUb]Yb'[YZc[Ybž'Y]bY'GhfUhY[]Yž'X]Y'ni bY\a YbX j cb'XYb'J Ò[Y`b'[Yk À\`h'k]fX"'8]YgY'Fci hY']gh'k Yb][Yf $\label{thm:continuous} $$YbYf[\]YUi\ Zk\ YbX][\ 'i\ bX`V]YhYh`Y]b`VYggYfYg`BU\fi\ b[\ gUb[\ YVch'']$$ @Ui\ h`XYa `B56I `n]Y\Yb`ZUgh`+) `i\ `XYf`XYi\ hgWkYb`K\Y]$ ghÒfWkY`Ui\ Z\ XYf`Ògh`]WkYb`Fci\ hY`ØVYf`XYb`6cgdcfi\ g`]b`XYb`BU\Yb`CghYb`i\ bX\ k\Y]hYf`bUWk`HUbgUb]U`cXYf`GØXUZf]_U"`\$\ XYf`FY[\ Y```Y[\ Yb`X]Y\ GhÒfWkY`hÀ[\`]Wk`%)\$\`V]g`'\$\$`?]`ca\YhYf`ni\ fØW_"$

8]Y'K U\`XYf'Ni [fci hY'ghY``h'Y]bY'JYf\U`hYbgUbdUggi b['Ub'X]Y
_`]a Uh]gWXYb'6YX]b[i b[Yb'XUf"'=a '5i [i gh'VY[]bbYb'X]Y

\$\dot b[gh\dot fWXY\tilde{z}']\fY' I a [YVi b['ni 'Yf_i bXYb\tilde{z}'VYj cf'g]Y'g]WX'Ui Z'XYb

K Y['bUWX'5\tilde{z}f]_U'a UWXYb\tilde{z}'c\tilde{z}h'i bUV\\Ab[]['j cb']\fYb'9`hYfb"

K \A\fYbX'XYg': `i [Yg'bi hnYb'X]Y'Gh\dot fWXY'Ui ZghY][YbXY'k Ufa Y

@ Zhghf\dot a Y'\tilde{z}f'Y]bYb'YbYf[]YgdUfYbXYb'GY[Y'\tilde{z}i ["

< YfUi gZcfXYfi b[Yb ZØf X]Y GhÒfWXY

Hfchn']\fYf'5bdUggi b[gZÀ\][_Y]h'g]bX'X]Y'GhÒfW\Y'nU\`fY]W\Yb; YZU\fYb'Ui g[YgYhnh''8Uni '[Y\ÒfYb'?c``]g]cbYb'a]h'Y`Y_hf]gW\Yb: fY]`Y]hi b[Ybž'6Y'U[i b[ž'JYf[]Zhi b[Yb'i bX'JYf`i gh'j cbFUgh[YV]YhYb''8]Y'6YcVUW\hi b['i bX'5bU`mgY'XYf'Ni [fci hYb'g]bXYbhgW\Y]XYbXž'i a 'X]YgY'; YZU\fYb'ni ']XYbh]Z]n]YfYb'i bXGW\i hna U»bU\a Yb'ni 'ZÒfXYfb''

Ni gUa a YbZUggYbX``Àgghig]W\`gU[Ybž'XUgg'X]Y`FØW__Y\f'XYf
K Y]» ghÒfW\Y`bUW\`F]YgU'b]W\h'bi f'Y]b'dcg]h]j Yg'NY]W\Yb'ZØf'X]Y
FY[]cb']ghž'gcbXYfb'Ui W\`XUg'6Yk i gghgY]b'ZØf'X]Y
< YfUi gZcfXYfi b[Yb'gW\ÀfZhž'X]Y'X]YgY'VYY]bXfi W_YbXYb'J Ò[Y`Ui Z']\fYa 'K Y['bUW\5Zf]_U'VYk À`h][Yb'a ØggYb''K À\fYbX'X]Y
B Uhi f!'i bX'Jc[Y`VYcVUW\hYf'[YgdUbbh'Ui Z'X]Y'9bhk]W_`i b[Yb
fi bX'i a 'X]Y'6fi hnY]h'V`]W_Ybž'V`Y]Vh'X]Y'<cZZbi b['VYghY\Ybž'XUgg
]b'XYf'_ca a YbXYb'GU]gcb'j]Y`Y'GhÒfW\Y']b'F]YgU'YfZc`[fY]W\

: Øf'a Y\f' ⇒ Zcfa Uh]cbYb'ni f'9bhk]W_`i b['XYf'K Y]» ghÒfWXY']b F]YgUž'VYgi WXYb'G]Y'V]hhY'<mark>GÀWX g]gWXY'</mark>i bX'ZØf'k Y]hYfY'8YhU]`g'ni]\fYa 'Ni [jYf\U`hYb'_`]W_Yb'G]Y'Ui Z'B 561 "

8 YhU]`g	
J c f ZU``	Gcbgh][Yg
Cfh	F]YgUž'8YihgWX`UbX
EiY``Yb	k k k "gUYWX g]gWX Y"XY
	• k k k "bUVi "XY

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