

9bhXYW_YbG]Y9ifcdUg'À`hYghYGhÀXhY.; YgWX]WXhY`\UihbU\'Yf`YVYb°

9bhXYW_Yb'G]Y'X]Y'À`hYghYb'GhÀXhY'9i fcdUg'i bX']\fYZUgn]b]YfYbXYb'; YgW\]W\hYb"'FY]gYb'G]Y'Xi fW\'; YgW\]W\hYb'' i bX'?i `hi f'j cb'D`ck X]k'V]g'7 ½X]n"



 $D\ck X]k \cite{thmspace} D\ck X]k \cite{thm$

D`ck X]k ž'Y]bY'XYf'À`hYghYb'GhÀXhY'9i fcdUgž'k i fXY'i a '*\$\$\$'j "7\f"'[Y[fØbXYh'i bX'nY][h'X]Y'Gdi fYb'Y]bYf'`Ub[Yb'; YgWX]WXhYž']bXYf'j YfqWX]YXYbY'J Ò`_Yf'k]Y'X]Y'H\fU_Yfž'F Òa Yf'i bX'C ga UbYb

\YffgW\hYb"'< Yi hY']gh'D`ck X]k 'a]h'gY]bYb'Yhk U'') \$"\$\$\$
9]bk c\bYfb'X]Y'nk Y]h[fO`> hY'GhUXh'6i `[Uf]Ybg"'8Yf
UfW\Ac`c[]gW\Y'DUf_'BYVYh'HYdYž'XUg'fOa]gW\Y'GhUX]cb'i bX'XUg
Ubh]_Y'H\YUhYf'g]bX'bi f'Y]b][Y'XYf'GY\Ybgk ØfX][_Y]hYbž'X]Y'X]Y
6Ygi W\Yf'Ubn]Y\Yb"'8UfØVYf'\]bUi g'k i fXY'D`ck X]k '&\$%- 'ni f
?i `hi f\Ui dhghUXh'9i fcdUg'[Yk À\`h'i bX'ZY]Yfh'X]Y'J]Y`ZU`h']\fYf
; YgW\]W\hY"

$9]bV^{})W_{-}^{-}]b^{-}X]Y^{-}A^{h}YghYb^{-}GhAXhY$

 $5f[\ cg\check{z}';\ f]YWXYb`UbX\check{z}'[\]`h'U`g'Y]bY'XYf'\grave{A}`hYghYb'_cbh]bi\]Yf`]WXVYg]YXY`hYb'Gh\grave{A}XhY'9i\ fcdUg''`A]h'Y]bYf'[\ YgWX\grave{A}hnhYb';\ YgWX]WXhY j cb'YhK U'+"$$$'&U\fYb']gh'g]Y'Y]b'VYXYi hYbXYg'NYi [b]g'Ubh]_Yf N]j]`]gUh]cbYb''`8]Y'YfghYb'G]YX`i b[Yb'[]b[Yb'Ui Z') $$$'j "'7\f'' ni <math>f\emptyset W_{-}$ "'GY\Ybgk $\emptyset fX$][_Y]hYb'K]Y'XUg']b'XYb': Y`gYb'[Y\Ui YbY H\YUhYf'i bX'XUg'UfWX\ac`c[]gWXY'A i gYi a 'g]bX'NYi [Yb'X]YgYf `Ub[Yb'; YgWX]WXhY''8]Y'GhUXh'\Uh'\Yi hY'YhK U'&+"\$\$\$'9]bk c\bYf''

; Ybi U']b' \(\frac{1}{2} \) i \(\frac{1} \) i \(\frac{1}{2} \) i \(\frac{1} \) i \(\frac{1}{2} \) i

 $8]Y' < Ui dhghUXh'; f]YWXYb`UbXgž'5h\Ybž'\Uh'] \fYb'I fgdfi b[']a '$U\f' $$$'j "'7\f"'8]Y'YfghY'G]YX`i b['`U['Ui Z'XYa 'VYfØ\a hYb': Y`gYb XYf'5_fcdc`]gž'j cb'k c'Ui g'X]Y'GhUXh'Xi fWX' < UbXY``i bX'GWX]ZZZU\fh k i WXg"' < Yi hni hU[Y'VY\YfVYf[h'5h\Yb'Yhk U'**) "$$$'A YbgWXYb i bX']gh'VY_Ubbh'ZØf'gY]bY'VYY]bXfi W_YbXYb'GY\Ybgk ØfX][_Y]hYb k]Y'X]Y'5_fcdc`]gž'XYb'DUfh\Ybcb'i bX'X]Y'Dfcdm`AYb"$

- $7 \setminus Ub]U\check{z}$; $f]YWXYb`UbX. 6Yg]YX`ib[gY]h`WU"`%+$$`j" <math>7 \setminus f"/VY_Ubbh`Z\emptysetfgY]bYb`jYbYn]Ub]gWXYb`< UZYb"$
- @UfbU_Už'NmdYfb.'<]ghcf]gW\Yg'GhUXh_Òb][fY]W\'?]h]cb a]h', VYffYghYb'V]g']bg'%' "'*\J\f\ibXYfh'j"'7\f"

- @]ggUVcbž'Dcfhi [U`. 'JYfa i h`]W\ 'UV'\\$\$\$'j "'7\f" [Y[fØbXYhž'k]W\h][Yg'<UbXY`gnYbhfi a ']b'XYf'5bh]_Y"
- **7** 1/2**X**]**nž** 'GdUb]**Y**b. '; fi bXghY]b`Y[i b['i a '%%\$\$'j "'7\f"ž ghfUhY[]gWX 'VYXYi hYbX'ZØf'X]Y'GYYZU\fh"

Ni gàhn`]W\ni 'X]YgYb'GhàXhYb'Yl]gh]YfYb'k Y`hk Y]h'k Y]hYfY'Ubh]_Y GhàXhY'k]Y'A UhYfU']b'\ddayb'Z\Ug'Gdi fYb'gY]h'XYf'5`hghY]bnY]h Ui Zk Y]ghž'cXYf'J UfUbUg]']b'\ddayx]Ybž'X]Y'U`g'Y]bY'XYf'à`hYghYb Xi fW\[Y\YbX'VYk c\bhYb'GhàXhY'[]`h"'8]YgY'GhàXhY'b]W\h'bi f']b 9i fcdUž'gcbXYfb'Ui Z'XYf'[UbnYb'K Y`h'V]YhYb'ZYggY`bXY'9]bV`]W_Y]b'X]Y'l fgdfØb[Y'i bX'9bhk]W_`i b[Yb'a YbgW\`]W\Yf'N]j]`]gUh]cbYb i bX'g]bX'Y]b'k Yfhj c``Yg'9fVY'ZØf'ni _ØbZh][Y'; YbYfUh]cbYb"

8 UgʻNi gUa a Ybk]f_Ybʻj YfgW\]YXYbYfʻ?i`hi fYbžN]j]`]gUh]cbYb i bXʻ[YgW\]W\h`]W\Yfʻ9fY][b]ggYʻgd]Y[Y`hʻg]W\ʻ]bʻXYbʻbcW\ʻ\Yi hY VYghY\YbXYbʻGhUXhghfi _hi fYbʻi bXʻA cbi a YbhYbʻk]XYfžʻX]YʻX]Y JYf[Ub[Yb\Y]hʻ`YVYbX][`\U`hYb"`8]Y`J]Y`ZU`hʻi bX`@Ub[`YV][_Y]h X]YgYfʻGhÀXhYʻYf]bbYfbʻi bgʻXUfUbžʻk]YʻYb[;; YgW\]W\hYʻi bX [Y[Ybk Àfh][Ygʻ@YVYbʻa]hY]bUbXYfʻj Yfk cVYbʻg]bX": Øf X]YYb][YbžʻX]Yʻg]W\ʻZØfʻX]Y`K i fnY`bʻXYfʻA YbgW\\Y]h]bhYfYgg]YfYbžʻg]bXʻX]YgY`\]ghcf]gW\YbʻGhÀhhYbʻj cb i bgW\AhnVUfYa `K Yfh'i bX`V]YhYbʻi bnÀ\`][Yʻ; YgW\]W\hYbž'X]Y XUfUi Z'K UfhYbž'YfnÀ\`h'ni `k YfXYb"

8 YhU]`g	
Cfh	D`ck X]k ž'6i `[Uf]Yb
EiY``Yb	k k k "fY]gYfYdcfhYf"XY
	• k k k "a Yf_i f"XY

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z 'Y]bY!fY]gY "XY