

SOCW4016

GcWJU`K cf_'<cbci fg'5Xj UbV\YX'DfUWJ\V\Y'DcfhZc`]c

HYfa 'Hk c''# '&\$&\$

7ci fgY^{*}Cj Yfj]Yk

GHJZZ:7cbHJWhi8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D\cbY
A UfYY'<][[]bg	11.1.3		A cfj Yb 6fck b %),	\$(' %'-, + &&,
5VbYf Dccb	k "dccb4 i bgk "YXi "Ui		A cfj Yb [*] 6fck b %* -	-',)'\$*,)

Hi hcfg

BUa Y	9a U]`	5j U]`UV]`]lm	@cWUhjcb	D\cbY
D\]``]dU'9j Ubg	d"Yj Ubg4 i bgk "YXi "Ui	HYfa '&ž'Hi YgXUmg %4'&&'cf'Vm Uddc]bha Ybh	A cfj Yb 6fck b	\$(\$&'+' - *, +
>UbY [.] 8Ybb]g	1/uby"XYbb]g4 i bgk "YXi "Ui	HYfa '' ž'Vm Uddc]bha Ybh	Hc 'VY WcbZfa YX	\$(\$&''\$% \$%%

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GWkcc``cZGcWJU``GWJYbWYg

Fcca '%) -

A cfj Yb 6fck b 7 &\$

Ya U]`. 'gcgg4 i bgk "YXi "Ui

d\cbY. '\$&'-',) '% \$+

7ci fgY 8YHJ] g

7 fYX]hDc]bhg *

Gi a a UfmcZh\Y 7ci fgY

$$\label{eq:hammer_condition} \begin{split} &\text{H\Y'GcVJU``K cf_'<cbci fg'5Xj UbWX'DfUWJWY'DcfhZc`]c']g'VUgYX'cb'U'gi ghU]bYXZ']b!XYdh\`ghi XmcZgcVJU`k cf_'dfUWJWY'''@cWUhYX'U'cb[g]XY'h\Y'@Yj Y``('Z]Y`X'YXi WUhJcb'd`UWYa YbhZ']hYbUV`Yg'mci 'hc'VUgY'U'Wf]hJWD`UbU`mg]g'cZgcVJU``k cf_'_bck `YX[Yža Yh\cXg'UbX'j U`i Yg'cb'h\Y'UfYU'cZdfUWJWY']b'k \]W\'mci 'UfY Yb[U[YX'''\dfu]'b'K']b'Y'''' \][\Yf'`Yj Y``UbU`mg]g'cZh\Ycfm']b'fY`UhJcb'hc'dfUWJWY'''H\]g Wci fgY'fYei]fYg'mci 'hc'XYj Y`cd'U'dcfhZc`]c'h\UhXYa cbghfUhY'UbU`mg]g'UbX'Yj U`i UhJcb'UbX'h\Y'Udd`]\WUhJcb cZ`YUfb]b['hc'gcWJU`'k cf_'dfUWJWY'''$$

7 ci fgY @YUfb]b['Ci hWca Yg

- %" ⇒XYbhjZmUbX`UbU`mgY`h\Y`fY`Uhjcbg\]d`VYhk YYb`h\Ycfmž_bck `YX[Yžg_]``g`UbX`j U`i Yg']b`U XYg][bUh'X`UfYU`cZdfcZYgg]cbU``gcWjU``k cf_`dfUWhjWY"
- &" 7 f]h]ei Y`]XYbh]Z]YX`UfYUg`cZgcW]U``k cf_`h\Ycfmž_bck`YX[Yžg_]``g`UbX`j U`i Yg`]b`]XYbh]Z]YX`Z]Y`Xg`cZdfcZ/gg]cbU``dfUWf)WY"
- ' " 5fh]W `UhY `Ub'i bXYfghJbX]b['cZUbX `WJdUW]mmhc `Yb[U[Y `]b `U `fYgYUfWX!]bZcfa YX `UddfcUWX `hc dfcZYgg]cbU ``gcW]U ``k cf_"

5ggYgga Ybh

5```ch\Yf'bYWrggUfmi]bZcfa Uh]cbi]g'dfcj]XYX'cbih\Y'A ccX`Y'g]hY'UbX'UggcWJUhYX'XcW'a Ybhg"

5ggYgga Ybh'HUg_g'

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Dcfh7c`]c'	%\$\$ı	Bch5dd`]WUV`Y	%ž&Ž ž(ž)

5ggYgga Ybh8YHJ]`g

5ggYgga Ybh% DcfhZc`]c

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\."%\$ž\$\$\$"k cfXg"]b"Zci f"dUdYfg"fUg"]bX]WUhYXŁ

8 YW] g.

Mci 'UfY'fYei]fYX'hc'XYj Y`cd'U'%\$ž\$\$\$'dfcZYgg]cbU``dfUW]VW'dcfhZc`]c'fY`UhYX'hc'mci f'@Yj Y`' 'UbX#cf'@Yj Y` ('D`UWYa Ybh''H\Y'dcfhZc`]c'Wcbg]ghg'cZZci f'dUfhgž'k\]W\'hc[Yh\Yf'k]``'dfYgYbhYj]XYbW''cZh\Y']bhY[fUh]cb cZ`YUfb]b['UWfcgg'6GK fkcbgŁ"

%" 7 f]h]\W\`YI Yf\\]gYg" 8 i Y`Hi YgXUm&' fX`>i bY

 $\label{thm:condition} 5 \text{ "gYf]Yg'cZg\cfhYl YfW]gYg']b'k\\]W\ 'mci''k\]^{``j}XYbh]Zm'UbX'Yl\ d`U]b'_Ym'UgdYWg']b'h\Y'fY`Uh]cbg\]d'VYhk YYbh\Ycfm\(\tilde{x}''_\)_bck `YX[\Y\(\tilde{x}'''_\)_]``g'UbX'j U`i\Yg']b'UfYUg'cZ'dfcZYgg]cbU`'gcW]U`'k\cf_''dfUWf]WY''fY`Yj\Ubh'hc'mci\f\dfUWf]VW'''\@C''%/\&Q\%$\$'k\cfXg_\%)\ \Q$

&"7cbWdhi U`YggUm'8iYHiYgXUm%(h\>i`m

'"7 UgY gh Xm"8i Y: f]XUm-h\ C Wc VYf fa UmVY gi Va]hhYX YUf`]YfŁ

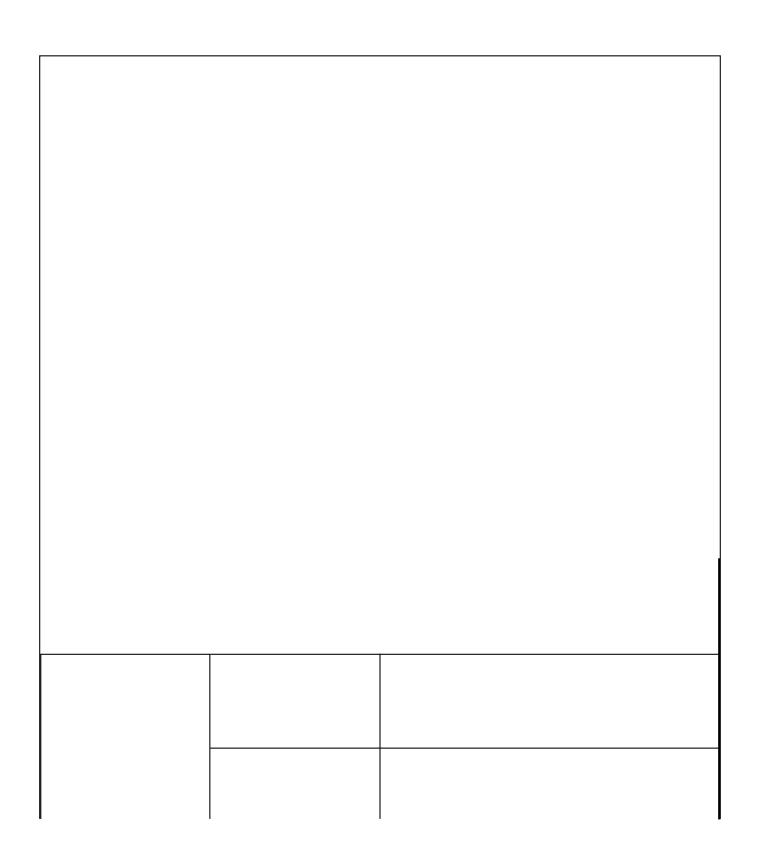
 $= XYbh]ZmUbX`Wf]h]WU``mfYZYWhicb`Ub`UgdYWhicZmci f`dfUWh]WY`YI dYf]YbWY`z`XYa cbghfUh]b[`h\Y`fY`Uh]cbg\]dVYhk YYb`gcW]U``k cf_`h\Ycfmž_bck `YX[Yz'g_]``g`UbX'j U`i Yg`''`@C`' z`('/') QO') $$`k cfXg—'$ \Q$

("'±bhY[fUh]jY'dUdYf"'8iY':f]XUm'%*h\'CWhcVYf

5 Wf light for ZYgg] cbu ``YUfb] b [``UWfcgg'h Y `6GK fk cbg light for ZYgg] cbu ``YUfb] b [``UWfcgg'h Y `6GK fk cbg light for ZYbh ZYbh

5XX]h]cbU`XYhU]`g.

Mci k]``VY'dfcj]XYX'k]h\cb[c]b['ZYYXVUW_cb'mcif'dcfhZc`]c'dfcYWhVmh\Y'WcifgY'WcbjYbYfg"'Mci k]``



		B6. 5g dYf h\Y W ff]W i a 'UX1 gha Ybhg Zcf 7CJ=8!% žh\]g h hcf]U`cWW fg cb K YXbYgXUm&) h\ GYdhYa VYf &\$&\$ž'%!%:cf'%'
	00 00	5ggYgga Ybh" . '7UgY'Gh Xm8L9'CWcVYf'-h\ &\$&\$fK YY_'('cZ'HYfa " Ł
Į.		5ggYgga Ybh'(. '-bhY[fUh]jY DUdYf 8I 9 CWhcVYf %'h\ '&\$&\$ fK YY_') cZHYfa '' Ł

FYgci fW/g

DfYgWf]VYX F Ygci fWyg

; UfXbYfž: `&\$%(ž'4W[` Y 5 dff[US^k D WkWUf[hW, B dSUf[UWF Z Wa dk [` 5 a` fW] fl DU`[fUj Y'A UWa]``Ub. '@cbXcb UbX'BYk 'Mcf_

<ck Yž8 %\$%(žFZW5a_bM&fEaU[S^I ad] Wd DU`[fUjYA UWa]``Ub.`@cbXcb`UbX`BYk `Mcf_

FYWca a YbXYX FYgci fW/g

5```Ubž'>z'6f]g_a Ubž'@/ `DYUgYž'6 `f\YXg\Z'&\$\$- z'5 q[f[US^EaU[S^I ad] \Land 5``Yb'/ \Land bk]bz'7 fck g'B Ygh'

6YbbYhž67; fYYbžG*&\$% žAgdHa[UWe, 3TaqY[`S^EaU[S^I ad] + &bX*9X]h]cbžGdf]b[Yfž@cbXcb"

< Ufa gž@/ '7 cbbc``mA '&\$\$- ž'GcW]U``K cf_.'7 cbhYl hg`UbX`DfUW]WYž'&bX`YX]h]cbž'C l ZcfX`l b]j Yfg]hm'DfYggž Gci h\`A Y`Vci fbY"'

<i [a UbžF %\$%(ž3ŽL aXBdaXNee[a`S^7fZ[UežDU`[fUjYAUWa]`Ubž@cbXcb"

 $A \ \ W? \]bbcbž>\!z`A \ \ W'' i \ fXmz`G'/ \ `5`ghcbžA \ `&\$\% \ \ z`EaU[S^I \ ad] \ , \ 8[WWe aXBdSUf[UWz'' fX`9X]h]cbz`C I ZcfX \ I \ b]j \ Yfg]hmDfYggz`5 i ghfU`]U"$

DUmbYžA %\$%(ž? aVWd EaU[S^I ad FZWackl'(h) 9X]hcbžDU`[fUjYA UWa]``Ubž@cbXcb"

5 XX]h]cbu``fYUX]b['a UhYf]U``]bWi X]b['Y!Vcc_g'UbX'^ci fbu``Ufh]WYg'UfY'Uj U]`UV`Y'j]U'h\Y'Wci fgY'A ccX`Y g]hY''`Ghi XYbhg'UfY'U`gc'Yl dYWhYX'hc'UVWYgg'dYYf'fYj]Yk YX``]hYfUhi fY'h\Uhi]g'fY`Yj Ubhhc'h\Y]f'dUfh]Wi`Uf ZcWi q''

7 ci fqY'9j U'i Uhcb'UbX'8Yj Y'cda Ybh

Mci 'UfY 'YbWci fU[YX'hc 'Wca d'YhY'h\Y'A m9l dYf]YbWY'gi fj YmiUbX'Wcbgi `hk]h\ 'mci f'hi hcfg'UbX'h\Y'Wci fgY Wcbj YbYfg'Ug'bYYXYX'''

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Hi fb]h]b Gi Va]gg]cb

Image: Ybwei bhyfu'dfcv'ya k \yb'uhhya dhjb['hc'gi va]hmci f'Ugg][ba Ybhh\fci [\ 'Hi fb]h]bž'd'YUgY

Hy'Yd\cby'9| hy'fbu''Gi ddcfhcb'-',) '' ' ' %cf'Ya U]''h\Ya 'cb'Y! hy'fbu'hy'hgi ddcfh4 i bgk "YXi "Ui "''Gi ddcfh
\ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-').\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUft"'=Z'mci
UfY'i bUV'Y'hc'gi va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\ 'Hi fb]h]b'mci 'a UmUdd'mZcf'Ub'Y! hy'bg]cbž'Vi hmci
a i ghfYhJ]b'mci f'h]W_Yhbi a VYf'Zfca '9! hy'fbU''Gi ddcfhfU'cb['k]h\ 'Ubmch\Yf'fy'Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj]XYbW' hc'gi ddcfhmci f'Y! hy'bg]cb'Udd']WUh]cb"'=Zmci 'Ya U]''9! hy'fbU''Gi ddcfhmci 'k]'`
Ui hca Uh]WJ'`mfYW']j Y'U'h]W_Yhbi a VYfZ'Vi h]Zmci 'hy'Yd\cby'mci 'k]``bYYX'hc'gdYW]Z]WJ'`mUg_'Zcf'cby''
Hi fb]h]b'U'gc'dfcj]XYg'i dXUhy'g'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hyf''

; YbYfU`mž'UggYgga YbhiHug_g'a i ghVY'gi Va]hhYX'Y`YVWfcb]\WJ``mij]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh''=b']bgHJb\W'g'k \YfY'h\]g']g'bchdcgg]V`Yž']hk]```VY'gHJhYX'cb'mci f'\\circ i fgY'g'A ccX`Y'g]hY'k]h\U`hYfbUh]j Y'gi Va]gg]cb'XYHJ]`g"

cfi]bZcfa Uhjcbicbi\ckihcigi Va]hUgg][ba Ybhgicbi]bYij]UiA ccXiY.i\hdg.#gh XYbhi bgk "YXi "Ui #\ck! gi Va]hUgg][ba Ybha ccXiY

5 WUXYa]W<cbYghmUbX D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b['h\Y`k cfXg`cf`]XYUg`cZch\Yfg`UbX`dfYgYbh]b['h\Ya `Ug`mci f`ck b"`±hWJb`hU_Y`a Ubm Zcfa gžZfca `XY`]VYfUhY`W\YUh]b['hc`UWW]XYbhJ``mWcdm]b['Zfca `U`gci fWY`k]h\ci hUW_bck `YX[Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga]bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.

 $7 \text{ cdm}b[...i g]b[...h\Y.gUa Y.cf.j Yfmig]a] \Uf'k cfXg'hc'h\Y.cf][]bU''hYl h'cf']XYU'k]h\ci h'U\V_bck `YX[]b[...h\Y.cf][]bU''hYl h'cf']XYU'k]h'cf']$

- i bXYfgfUbX mci f'f][\hg'UbX'fYgdcbg]V]`]hJYg'Ug'U'gh XYbhUhl BGK
- VY`Uk UfY`cZd`U[]Uf]ga ž`Wcdmf][\hz'l BGK `Gh XYbh7cXY`cZ7cbXi WhUbX`5VWWdhUV`Y`l gY`cZ I BGK `=\forall H`F Ygci f\W\g`Dc`]\m\m
- VY 'Uk UfY 'cZh\Y 'ghUbXUfXg 'cZVY\Uj]ci f'Yl dYWYX 'cZYj YfmcbY ']b 'h\Y 'l BGK 'Wca a i b]hm
- `cWUHY 'gYfj]WYg'UbX ']bZcfa UH]cb'UVci hI BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZh\YgY'UfYUg'k]``VY'ZJa]`]Uf'hc'mci žch\Yfg'k]``VY'bYk"'; U]b]b['U'gc`]X'i bXYfgHJbX]b['cZU``h\YfY`UhYX'UgdYWhg'cZ9@&9'k]``\Y`d'mci 'a U_Y'h\Y'a cghicZmci f'ghi X]Yg'UhI BGK "'\\hd.##qi V'YWfi |XYg"`]VfUfm'i bqk "YXi "Ui #\`]qY#JVci hY`]qY

