

Y:3W>2:J!Y66W!M?!6I63?!16J,3-N6;-!0;!-26!>72::5#!X6!>-055!2,I6!-:!>6-!=J!N:36!N66-0;B>!-:!



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-: |B6-!0;G:3N,-0:;!,M:=-!2:N656>>;6>>!0;!-26!>?55,M=>8!0-!N0B2-!M6!2,31!-:!G0-!-26!-Y:!>:!Y6!
        >2:=51!J=>2!-2,-!6:3!5,-63#! X 6!>2:=51!6:7=>!:;!-26!2:N656>>;6>>!603>-#!!
2T74T!
     $# *"/$T//"(K!"'+E!L!'!MIN&S*#$?:&9(?*.K!
         '26!/6; .-: 3!: 6!%5=N: 0!) 65,-0::>!Y055!=J1,-6!-26!6:-036!/6; ,-6!::!-26!F0: .5>!C: 507?#!
         FN9$0$B$!>-,-6>!-2,-!-2636!0>!,!N66-0;B!;6Z-!E:;1,?#!"!1:!;:-!2,I6!N=72!:6!,;!=J1,-6!;:Y#!
         "!Y,;-61!-:!N66-!Y0-2!-26!72,038!M=-!"!;6163!36760161!,l36>J:;>6#!"!Y055!2,16!-:!=J1,-6!?:=!,55!
         ,-!-26!;6Z-!N66-0;B#!NMFE"A#*:!,>W>!0G!-2636!Y055!M6!,!I:-6!:;!0-#!FM9$0$B$!>-,-6>!-2,-!0-!Y,>!
         J,>>61!5,>-!?6,3!,;1!%/"!2,>!-26!,M050-?8!,>!, !M:1?8!-:!7: N6!=J!Y0-2!,!J:507?!,;1!-,W6!0-!-:!-26!
         %7,16N07!/6;,-6!6:3!-26N!-:!I:-6#!X6!1:!;:-!2,I6!-:!J,>>!,!36>:5=-0:;#!X6!-::W!0-!-:!-26N!
         ,;1!-26?!16063361!0-!M,7W!1:Y;!-:!$=3307=5=N!";>-3=7-0:;!$:NN0--66!,;1!F,7=5-?!%00,03>!
         $: NN0--66#! '26>6!, 36!-26!:; 6!7: NN0--66!-655! J3: 66>>: 3>! 2: Y!-:!7:; 1=7-!, ; 1!-6, 72!-2603!
         N, -630, 5!, ;1!-26!:-263! J3:-67->!-2603! 30B2->#!"-!2,>!-:!B:!-23:=B2!-2:>6!72, ;;65>!M66:36!0-!0>!
         I:-61!:;!M?!-26!T;0I63>0-?#!!
2J726!!
     *# *"/$T//"(K!"'+E!L!
```

=;163>-,;1!-2,-!-26?!,36!00;0;B!>-=16;->8!,>!,!>=BB6>-0:;8!0-!Y:=51!M6!B::1!-:!Y:31!0-!M6--63#!

9\hat{\mathbb{N}} 'AEB*#(>!>-,-6>!-2,-!26!>J:\hat{\mathbb{N}} 'B:\mathbb{E} 637,1:\hat{\mathbb{E}} 26!/6;,-:3!:\hat{\mathbb{G}} :\mathbb{N} N=-63!>-=16;->!,;1!26!0>!

Y0-2!\hat{\mathbb{N}} !:"!-\frac{\mathbb{N}} 25!\hat{\mathbb{M}} !\hat{\mathbb{N}} :\mathbb{E} 637,1:\hat{\mathbb{R}} !-26!/6;,-:3!:\hat{\mathbb{G}} :\mathbb{N} N=-63!>-=16;->!,;1!26!0>!

Y0-2!\hat{\mathbb{N}} !:\hat{\mathbb{N}} :\mathbb{E} 637,1:\hat{\mathbb{R}} !-26!-\hat{\mathbb{N}} :\mathbb{E} 1.0:\hat{\mathbb{E}} !\hat{\mathbb{N}} !\hat{\mathbb{N}} !\hat{\mathbb{N}} !\hat{\mathbb{M}} !\hat{\mathbb{N}} !\hat{\mathbb{M}} !\hat{\mathbb{N}} !\ha

-2,-!-26?!>2:=51!B6-!0;!7:;-,7-!Y0-2!D62=!\$,A,36>!Y2:!0>!0;!72,3B6!:G!F,7050-06>!0;!2:=>0;B#!V6!
0>!>:N6:;6!-2,-!2,>!-:!M6!0;I:5I61!Y0-2!-20>#!"!,N!;:-!>=36!0G!-26!J6:J56!?:=!,36!Y:3W0;B!Y0-2!
2,I6!7:;-,7-61!20N8!M=-!0-!Y:=51!M6!M6>-!-:!7:;-,7-!20N#!"G!?:=!Y,;-8!"!7,;!7:;-,7-!20N!G:3!
?:=#!; MC"\%<"(#!,>W>!-2,-!;6Z-!>6N6>-638!,36!?:=!-3?0;B!-:!0;75=16!-26!>-=16;->!,>!Y655#!
!CM'E">\$:!>-,-6>!-2,-!X0;;06!<Y:0068!Y2:!0>!0;!72,3B6!:G!F,7050-06>8!Y,>!:=-!:;!,!G,N05?!
6N63B6;7?8!Y2072!0>!Y2?!-26!1,-6!Y,>!>6#!/26!-:51!N6!G:3!-26!>J30;B!>6N6>-638!Y6!Y055!B:!M?!
Y2,-!Y,>!Y30--6;!0;!-26!36>:5=-0:;#!NMO(?"P!>-,-6>!-2,-!2,10;B!N:36!50B2->!:;17,NJ=>!2,>!
M66;!N6;-0:;618!6>J670,55?!,3:=;1!2:=>0;B#!X26;!Y6!2,1!36J36>6;-,-016>!7:N6!-:>J6,W8!-26?!
>2=-!0-!1:Y;!M?!>,?0;B!-26!50B2->!Y055!>20;6!0;-:!-26!1:3N>#!"!Y,>!13010;B!,3:=;1!,;1!Y6;-!0;-:!
\$:>-7:!,;1!>,Y!-2,-!-2636!,36!50B2->!-2,-!,36!;:!20B263!-2,;!?:=3!20J!-2,-!7,;!M6!J5,761!
-23:=B2:=-!2:=>0;B#!"Y:=51!50W6!-:!B:!-:!,!/,66-?!X,5W!,;1!N6;-0:;!-2,-!50B2->!,36!;66161#!
CW'E">\$:!>,?>!-26!G03>-!:;6!Y,>!1=30;B!-26!1,?!-0N68!,;1!-26!0a⁻²!:;6!Y055!M6!1=30;B!-26!
;0B2--0N6#!9\W'AEB*#(>>,?>!,5:;B!Y0-2!-26!/,66-?!X,5W>8!26!X!26(!)]TJET/TT212611(!)-32.6(8!)54.

 $\begin{array}{l} \text{W07W}: \texttt{GG!0} > !7: \textbf{N0}; \texttt{B!} = \textbf{J!}; \texttt{6Z-\#!} + \textbf{16}; !-2: = \texttt{B2!0} - !0>!, !7: = \textbf{J56!N}:; -2>! := -8! > 26! \textbf{Y055!} > -055! \texttt{M6!10} > 7 => > 0; \texttt{B!} \\ \texttt{0-!1} = \texttt{30}; \texttt{B!} - 26! \textbf{N66-0}; \texttt{B} > \#! / 26! >, ?>! > 26! 0>!, !\textbf{J}, 3-! : \texttt{G!} / \% \% \$! \texttt{b} / -= 16; -!\% - 256-07! \% 1 \textbf{I0} > : 3?! \$:= ; 705c8! \\ \texttt{, ; 1!} > 26! \textbf{Y055!} \texttt{M6!} > \textbf{J6}, \texttt{W0}; \texttt{B!} - : ! - 26 \textbf{N!}, \texttt{M} := -! > : \textbf{N6!} 7: ; 763; > ! - 2, -! 2, \textbf{I6!} \texttt{M66}; !M3: = \textbf{B2} - ! = \textbf{J!} \texttt{M?!} - 26! \\ \texttt{>-= 16}; -!, -256-6> \#!! \end{array}$

1Z7T5&

*# /6;,-:3!:G!";-63;,-0:;,5!/-=16;->!bQ!N0;=-6>c!

9lk 'AEB*#(>!>-,-6>!-2,-!-20>!?6,3!26!0>!J5,;;0;B!:;!61=7,-0;B!0;-63;,-0:;,5!>-=16;->!,M:=-!

7,NJ=>!36>:=376>!,;1!J3:N:-0;B!N=5-07=5-=3,50>N8!Y2056!736,-0;B!,!>,66!6;I03:;N6;-!G:3!-26!

\$,5!/-,-6!+,>-!9,?!7:NN=;0-?#!V6!Y055!,720616!-20>!-23:=B2!,!>6306>!:Gl0;0-0,-016>!-2,-l0;I:516>!

Y0-2!B3:=J>#! '26?!0;I:516!:3B,;0A0;B!B,-263>!G:3!0;-63;,-0:;,5!>-=16;->!-2,-!61=7,-6!-26N!

,M:=-!:=3!36>:=376>!,;1!7=5-=36>!,;1!N,W6!-2603!=;0163>0-?!6ZJ6306;76!N:36!7:NG:3-,M56#!V6!

0>!Y:3W0;B!:;!0;0-0,-016>!-:!N,W6!:=3!7,NJ=>!>,66!,776>>!M?!J6-0-0:;0;B!-26!\$0-?!:G!V,?Y,31!

