```
!''#$%&#'''!$&(#)$*$&)#(!)$+!,$#,-'+$#
                 . - +#$%&# / &)$&+"#(!)$+!,$#-.#*+0*")*)#
#$%&'#("'&)*&+*"#$&+)*"'&,"
-$./." -+0$&$1" 0'%)+&$12" *&"
#$3'45"*5")3$0.$46$."'&,"'44"
*)3$%.".+0+4'%47".+)/')$,2"
            89:;<=;>>??""
                                        ######### , 123#'' 45#6789:;<:969=>:) - %#
@A""
                                        *****
4 * B % 7 "5 ' % 0 .2"+&CA" ' & , "0 +C3 ' $4"
                                               ?'+@#$+!*A#(&B*''(&(#
C4'7)*&" 4*B%7" 'D'" C4'7"
4 * B % 72"
             , E>E<F:<=?A"
                         <u>, - B CA *!" $#D# , A * ) ) # * , $! - "</u>#
#
                          C+&A!B!"*+@#)$*$&B&"$#
```

TA ")G;?":H=;I<";?"JNIOMG="I<"JEG:9>"I>":"H9:??"=G:="9;QE9K"<OLJEN?"LINE"=G:<"T2^^^"

XMOE?="PINQEN?Y">NIL" OE_;HI"PGI"PINQEF">IN", E>E<F:<=?"R9:<=;<M"?OM:NH:<E";<"4IO;?;:<:"

JE=PEE<"T^!`":<F"T^!\A"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?":NE"9IPSP:ME"=ELRIN:NK"PINQEN?"

JNIOMG="JK", E>E<F:<=?"=I"=GE"/<;=EF".=:=E?"I<"=;LES9;L;=EF"PINQ"@;?:?"JEH:O?E"I>":<":RR:NE<="

?GIN=:ME"I>" / A. A"PINQEN?"=I">;99", E>E<F:<=?[":@:;9:J9E"aIJ?A"5IN"KE:N?2"89:;<=;>>?":<F"=GE"I=GEN"H9:??"

LELJEN?"G:@E"9E>="=GE;N"GILE?":<F">: L;9;E?";<"OE_;HI":<F"?RE<="HI<?;FEN:J9E"LI<EK":<F"E>>IN="=I"

HILE"=I"=GE" / <;=EF".=:=E?"=I"PINQ">IN", E>E<F:<=?A"

bA

@;?:?":<F"PINQEF";<"4IO;?;:<:"R9:<=;<M"?OM:NH:<EA""8ON?O:<="=I"T\"/A.ACA"]"T!`WJZ2"89:;<=;>>"-E?O?"

-;LE<EV" O:N=;<EV"G:?"HI<?E<=EF";<"PN;=;<M"=I"JE":"R:N=K"R9:;<=;>>";<"=G;?"54.'":H=;I<A""3;?"PN;==E<"
HI<?E<=";?":==:HGEF"=I"=G;?"CILR9:;<=":?"\$_G;J;="'A"

!eA , E>E<F: <="41PNK"5:NL??"+<HA";?":<" 'NQ:<?:?"HINRIN:=;I<"P;=G";=?"RN;<H;R:9"R9:HE"I>"

JO?;<E??";<" 3 ENL;=:ME2" 'NQ:<?:?A" "4 IPNK"5:NL??"+<HA"RN;L:N;9K" IREN:=E?":?":"9:JIN"HI<=N:H=IN"

?ORR9K;<M"PINQ"HNEP?"=I"?OM:NH:<E">:NL?";<"41O;?;:<:"=I"E<M:ME";<"=GE"G:<F"R9:<=;<M"I>"?OM:NH:<EA""

!`A , E>E<F:<="0;HG:E9"C9:K=I<"4 IPNK":Q:"C9:K"4 IPNK";?":<";<F;@;FO:9"PGI"NE?;FE?";<"

3 ENL;=:ME2" 'NQ:<?:?":<F";?"=GE"IP<EN":<F"8NE?;FE<="I>", E>E<F:<="4 IPNK"5:NL?2"+<HA"", ON;<M":99"

=;LE?"NE9E@:<="=I"=G;?":H=;I<2", E>E<F:<="0;HG:E9"C9:K=I<"4 IPNK"L:;<=:;<EF"IREN:=;I<:9"HI<=N19"

I@EN", E>E<F:<="4 IPNK"5:NL?2"+<HA""

!hA '=":99"=;LE?"NE9E@:<="=I"=G;?":H=;I<2", E>E<F:<="4IPNK"5:NL??"+<HA"P:?"E<M:MEF";<"
HILLENHE"IN";<"=GE"RNIFOH=;I<"I>"MIIF?">IN"HILLENHE"P;=G;<"=GE"LE:<;<M"I>"=GE"54. '2"T\"/A.ACA"

]"T^bw?ZW!ZW'ZZ";<"=G:=";="IREN:=EF":">:NL"9:JIN"HI<=N:H=;<M"JO?;<E??";<"'NQ:<?:?":<F"4IO;?;:<:""

PINQ;<m"HI<F;=;I<?"I>"?;L;9:N9K"?;=0:=EF" / A. A"PINQEN?A""g" / A. ACA"]]"9!^!W:ZW!eZW3ZW;;ZW:Z":<F"!!gg"
W:ZW9ZA"+<F;@;F0:9?":FL;=EF";<"=G;?">:?G;I<":NE"HILLI<9K"NE>ENNEF"=I":?"k3ST' "MOE?="PINQEN?Ak"

!\A 5EFEN:9"NEMO9:=;I<?":="T^"CA5A%A"]"\eeA!TT"E?=:J9;?G"=GE"L;<;LOL"JE<E>;=??"P:ME??"
:<F"PINQ;<M"HI<F;=;I<?"=G:="LO?="JE"I>>ENEF"JK":<"ELR9IKEN":?"R:N="I>":<"3ST'"@;?:":RR9;H:=;I<"
;<"INFEN"=I":@I;F":F@EN?E9K":>>EH=;<M"?;L;9:N9K"?;=O:=EF"/A.A"PINQEN?A"""

T^A '<":MN;HO9=ON:9"ELR9IKEN"?EEQ;<M":"=ELRIN:NK"9:JIN"HEN=;>;H:=;I<"O<FEN"=GE"3ST'"

@;?:"H9:??;>;H:=;I<"LO?="?:=;?>K"HEN=:;<"NEMO9:=INK"NEcO;NELE<=?"JK"HILR9E=;<M">INL?"\$)'"\!dT'2"

\$)'Sh\^2":<F"\$)'Sh\^\"PG;HG":NE";<=E<FEF"=I"F;?H9I?E":99"=GE"L:=EN;:9"=ENL?":<F"HI<F;=;I<?"I>"ELR9IKLE<="-G:="-GE"ELR9IKEN"P;99"I>>EN"=GE"3ST'"PINQEN?A!""""

T!A "") GE"=ELRIN: NK"9: JIN"HEN=;>;H:=;I<":RR9;H:=;I<">INL?";<H9OFE":<":==E?=:=;I<"JK"=GE"

ELR9IKEN"=G:=";="P;99": J;FE"JK": RR9;H: J9E"NEMO9:=INK"NEcO;NELE<=??";<H9OF;<M"JO="<I="9;L;=EF"=I"=GE"

>199IP;<M"=ENL?1""

:A) GE" ELR9 I KEN" P;99" R:K":99" P I NQEN?" = GE" G;MGE?=" I>" = GE":RR9;H:J9E":F@EN?E"

E>>EH="P:ME"N:=E";<"E>>EH=":="=GE"=; LE"=GE"PINQ";?"REN>INLEF2"=GE"RNE@:;9;<M"GION9K"

P:ME"IN"R;EHE"N:=E2"IN"=GE"5EFEN:9"IN".=:=E"L;<;LOL"P:ME">IN"E@ENK"GION"IN"RIN=;I<"
=GENEI>"PINQEF"FON;<M":"R:K"REN;IFA"T^"CA5A%A"]]" eeA!T^2" eeA!TTW9Zj"""

JA ' "NEcO;NELE<="=G:=";>"=GE" P INQEN" P;99" JE"R:;F" I<": "R;EHE"N:=E" J:?;?":<F"=GE" R;EHE"N:=E" J:?;?":<F"=GE" R;EHE"N:=E" J:?;?":<F"=GE" R;EHE"N:=E" J:?;?":<F"=GE" R;EHE"N:=E" J:?;?":<F"=GE" R;EHE"N:=E" J:?;?":<E"=GE" R;EHE"N:=E" J:?;?":<E" J:?;?":<E"

e"

^{!&}quot;")GE?E">INL?"L:K"JE">IO<F":="G==R?lffPPPA>INE;M<9:JINHEN=AFI9E=:AMI@f>INLAH>L

:?"=GE"PINQEN"PIO9F"G:@E"E:N<EF"FON;<M"=GE"R:K"REN;IF";>"=GE"PINQEN"G:F"JEE<"R:;F"
:=" =GE" :RRNIRN;:=E" GION9K" P:ME" N:=E" >IN" E:HG" GION" PINQEFA" T^" CA5A%A"]"
`eeA!TTW9ZWTZj""

HA) GE"ELR9IKEN" P;99"QEER": HHON:=E":<F":FEcO:=E"NEHINF?" P;=G"NE?REH="=I"=GE"

PINQEN[?"E:N<;<M?2";<H9OF;<M"=GE"<OLJEN"I>"GION?":H=O:99K"PINQEF"E:HG"F:K2"=GE"

=;LE"=GE"PINQEN"JEM:<":<F"E<FEF"E:HG"PINQF:K2":<F"=GE"N:=E"I>"R:K"WJI=G"R;EHE"N:=E"

:<F"GION9K2";>":RR9;H:J9EZA"".OHG"NEHINF?":NE"=I"JE"NE=:;<EF">IN"<I="9E??"=G:<"=GNEE"

- 9: J IN" HEN=;>;H:=;I<2";<H9OF;<M" R: KLE<=" I>" =GE" ELR9 I KEN[?" NEHNO;=LE<=" HI?=?A" " T^" CA5 A% A"]"`eeA!beWaZj":<F"
- ' <" : ??ON : <HE" =G := "=GE" ELR9IKEN" G : ?" HI <=N : H=O : 99K" >INJ ;FFE <" : <K" >INE;M <" 9 : J IN" HI <=N : H=IN" IN" NEHNO ;=EN" WIN" : <K" : ME <=" I >" ?OHG" >INE ;M <" 9 : J IN" HI <=N : H=IN" IN" NEHNO ;=ENZ" PG I L "=GE"ELR9IKEN" E <M : ME ?2"E ;=GEN"F ;NEH=9K" IN" ; <F ;NEH=9K2" ; <" ; <=EN < : =; I < : 9" NEHNO ;=LE <=" I >" 3 ST ' " P INQEN ?" = I" ?EEQ" IN" NEHE ;@E"R : KLE <= ?" IN" I =GEN" HI LRE <? : =; I <" >NI L "RNI ?REH= ;@E"ELR9IKEE ?A"" T ^" CA5 A% A"] " ` ee A! be WQZA"
- TTA) GE">1991P;<M": F@EN?E"E>>EH="P:ME"N:=E?": RR9;EF"=I"3ST'"PINQEN?"ELR9IKEF"

(&.&"(*"\$)G#C*+\$!,!C*\$!-"#!"#\$%&#%:8*#E!)*#C+-F+*B#

TeA , E>E<F:<=" O ;HG:E9"C9:K=I<"4IPNK"G:?"JEE<"0=;9;V;<M"=GE"3ST'"RNIMN:L"?;<HE":="
9E:?="T^^g2"E;=GEN"=GNIOMG"G;?"HONNE<="HILR:<K2", E>E<F:<="4IPNK"5:NL?2"+<HA2"IN"=GNIOMG"RNE@;IO?"
HILR:<;E?"?OHG":?"C9:K"4IPNK"5INE?=NK2"+<HA#"

T`A , E>E<F:<="41PNK"5:NL?2"+<HA":RR9;EF">IN"=ELRIN:NK"9:JIN"HEN=;>;H:=;I<?"=I"ELR9IK"

>INE;M<"PINQEN?"RON?O:<="=I"=GE"3ST'"@;?:"RNIMN:L"=I"E<M:ME";<"?OM:NH:<E"R9:<=;<M";<"4IO;?;:<:"
;<"T^!`2"T^!h2"T^!g2":<F"T^!\A"")GE?E"=ELRIN:NK"9:JIN"HEN=;>;H:=;I<":RR9;H:=;I<?2"PG;HG"PENE"

O9=;L:=E9K":RRNI@EF":<F"HEN=;>;EF"JK"=GE">EFEN:9"MI@EN<LE<=2";FE<=;>;EF"4IPNK"5:NL?2"+<HA":?"=GE"

ELR9IKEN"I>"=GE"3ST'"PINQEN?":<F"?IOMG="HEN=;>;H:=;I<"=I"E<M:ME";<"?OM:NH:<E"R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M">INE;R9:<=;<M"
INE;R9:<=;<M"

T^!`l""hf!efT^!`"o"!^fT^fT^!`"W`gd"3ST'"PINQEN?Z"
T^!hl""hf!efT^!h"o"!^fT^fT^!h"Wgdh"3ST'"PINQEN?Z"
T^!gl""hf!efT^!g"o"!^fT^fT^!g"Wg``"3ST'"PINQEN?Z"
T^!\l""hf!efT^!\"o"!^fT^fT^!\"WgTe"3ST'"PINQEN?Z"

ThA '?"R:N="I>"=GE"=ELRIN:NK"9:JIN"HEN=;>;H:=;I<":RR9;H:=;I<?";FE<=;>;EF";<"8:N:MN:RG"T^2"

, E>E<F:<=?" ?OJL;==EF"=GE":RR9;H:=;I<" FIHOLE<=?" FE?HN;JEF";<"8:N:MN:RG"T^"=I"=GE":RRNIRN;:=E"

MI@EN<LE<=

beA 89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?"?RE<="HI<?;FEN:J9E"?OL?"I>"LI<EK"=I"IJ=:;<"=GE;N"
3ST' "PINQ"@;?:?":<F"=N:@E9">NIL"=GE;N"GILE=IP<?";<"0E_;HI"=I"=GE"/<;=EF".=:=E?"=I"PINQ">IN"
, E>E<F:<=?";<"4I0;?;:<:A"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?";<HONNEF"=GE?E"HI?=?2"PG;HG"PENE"
RN;L:N;9K">IN"=GE"JE<E>;="I>"=GE;N"ELR9IKENA"

b`A '>=EN"JE;<M"NEHNO;=EF"=I"PINQ">IN", E>E<F:<=?2"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?"

PENE"=I9F"JK", E>E<F:<=?["NERNE?E<=:=;@E?"PGE<"=I":NN;@E";<"OI<=ENNEK2"OE_;HI">IN"=GE"RNIHE??;<M"

I>"=GE;N"3ST'"@;?:?A"""

bhA 89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?";<HONNEF"=N:<?RIN=:=;I<"E_RE<?E?"=I"=N:@E9">NIL"

=GE;N"GILE=IP<?"=I" O I<=ENNEK2" O E_;HI">IN"=GE"RNIHE??;<M"I>"=GE;N" 3 ST ' "@;?:?A"") GI?E"E_RE<?E?"

PENE">IN"=GE"RN; L:NK"JE<E>;="I>", E>E<F:<=?":<F"PENE"<I="RNIREN9K"NE; LJON?EF"FON;<M"=GE"89:;<=;>>?["
:<F"I=GEN" H9:??" LELJEN?[">;N?="R:K" REN;IF?2" IN" :=":<K"I=GEN" =; LE" FON;<M"=GE" REN;IF" I>"=GE;N"

ELR9IKLE<=A""

bgA 89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?";<HONNEF"9IFM;<M"E_RE<?E?"PG;9E"=GEK"NEL:;<EF"
;<" O I<=ENNEK2" O E_;HI2"P:;=;<M">IN"=GE;N" 3 ST ' "@;?:":RR9;H:=;I<?"=I"JE"RNIHE??EFA"") GI?E"E_RE<?E?"
PENE">IN"=GE"RN; L:NK"JE<E>;="I>", E>E<F:<=?":<F"PENE"<I="RNIREN9K"NE; LJON?EF"FON;<M"=GE"89:;<=;>>?["
:<F"I=GEN"H9:??"LELJEN?[">:N?="R:K"REN;IF?A"

b\A 89:;<=;>>?":<F" I=GEN" H9:??" LELJEN?" R:;F":" i!\^">EE":?" R:N=" I>"=GE" 3 ST ' " @;?:"

:RR9;H:=;I<"RNIHE??A%"")G;?">EE"P:?"RN;L:N;9K">IN"=GE"JE<E>;="I>", E>E<F:<=?A"", E?R;=E"=G:=">:H=2";="
P:?", E>E<F:<=?["?=:=EF"PN;==E<"RI9;HK"=G:="=GE"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?"PIO9F"G:@E"=I"
R:K"=G;?">EEA"")G;?">EEA"")G;?">EE"P:?"<E@EN"NE;LJON?EF"FON;<M"=GE"89:;<=;>>?[":<F"I=GEN"H9:??"LELJEN?[">;N?="R:K"REN;IF?A"""""

^{%&}quot;"See"G=R?1ffL AO?ELJ:??KAMI@fELJ:??KSHI<?O9:=E?fLI<=ENNEKf@;?:?fGTS@;?:?S;<SLI<=ENNEKf"

ddA , E?R;=E" RNIL;?;<M" :?" R:N=" I>" =GE" 3ST ' " @;?:" :RR9;H:=;I<" RNIHE??" =I" R:K" =GE"

MO:N:<=EEF"L;<;LOL":LIO<=?">IN"=GE">;N?="PINQPEEQ"I>"ELR9IKLE<=":?"FE?HN;JEF";<"8:N:MN:RG?"

TgSb^2" , E>E<F:<=?" R:;F" =GE" 89:;<=;>>?" :<F" I=GEN" H9:??" LELJEN?" ?OJ?=:<=;:99K" 9E??" =G:<" =GI?E"

:LIO<=?">IN"=GE;N">;N?="PINQPEEQ"I>"ELR9IKLE<=2";<"JNE:HG"I>"=GE" 3ST ' "PINQ"HI<=N:H=?A"

deA , E>E<F:<=?">>:;9EF" =I" NE; L J ON?E" =GE" 89:;<=;>>?" :<F" I =GEN" H9:??" LEL J EN?" PGI" HI L R9E=EF"e^m"I>"=GE;N"P INQ"HI<=N:H=?">IN"=GE">O99": L IO<="I>"=N:<PRIN=:=;I<"E_RE<?E?"=GEK";<HONNEF" =I"=N:@E9">NI L "=GE;N"GI L E?";<" O E_;HI"=I" , E>E<F:<=?["aIJ?;=E?";<"=GE" / <;=EF" . =:=E??":<F">::=E??":<F">::=E??":<F">::PE" . =:=E??":<F">::PE" . =:=E??":<F" . =:=E??":<

d`A , E>E<F:<=?">:;9EF"=I"RNI@;FE"IN"I=GENP;?E"R:K">IN"=GE">O99"=N:<?RIN=:=;I<"HI?=?"GILE"
:<F"F:;9K"?OJ?;?=E<HE"=I"=GE"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?"PGI"HILR9E=EF"=GE"HI<=N:H="REN;IF2"
;<"JNE:HG"I>"=GE"3ST' "PINQ"HI<=N:H=?":<F"=GE"NEMO9:=;I<?"MI@EN<;<M"=GE"3ST' "RNIMN:LA"T^"CA5A%A"
]"`eeA!TTWGZWTZA"

dhA 89:;<=;>>?"?EEQ"=I"JN;<M"=GE;N"54.'"H9:;L?"WCIO<="+Z":?":"NERNE?E<=:=;@E":H=;I<"I<"

JEG:9>"I>"X:99"3ST' "=ELRIN:NK">INE;M<"PINQEN?":FL;==EF"=I"=GE"/<;=EF".=:=E?"RON?O:<="=I"g"/A.ACA"

]"

PINQEF"JK" 3ST' "PINQEN?": <F" < I="?ORR9ELE<=; < M"=GE; N"R; EHESN: =E"E: N<; < M?2"NE?O9=; < M"; < "=GE" 3ST' "PINQEN?"E: N<; < M"9E??"=G: < "=GE"L; < ; LOL"P: ME">IN": 99"GION?"PINQEFj

- BGE=GEN" =GE" 89:;<=;>>?" :<F" I=GEN" H9:??" LELJEN?" NEHE;@EF" 9E??" =G:<" =GE"

 NEcO;NEF" 'F@EN?E"\$>>EH="B:ME"%:=E"W'\$B%Z">IN"E@ENK"GION"I>"PINQ"FON;<M"=GE;N"

 >;N?="PINQPEEQ":?":"NE?O9="I>", E>E<F:<=?[">::;90NE"=I"RNIREN9K"NE;LJON?E"=GE"

 89:;<=;>>?[":<F" I=GEN"H9:??" LELJEN?">IN"@;?:2"=N:<?RIN=:=;I<2" JINFEN"HNI??;<M2":<F"

 NE9:=EF">EE?":<F"E_RE<?E?":??IH;:=EF"P;=G"IJ=:;<;<M"3ST'"@;?:?":<F"=N:@E9;<M"=I"=GE"

 /<;=EF".=:=E?"=I"PINQ">IN", E>E<F:<=?2";<"@;I9:=;I<"I>"=GE"89:;<=;>>?[":<F"I=GEN"H9:??"

 LELJEN?["HI<=N:H=?"P;=G"=GE", E>E<F:<=?A"
- $$\begin{split} & \text{B GE-GEN"=GE"} \text{ , E>E<F:} <=?">:;9EF"=I"R:K"=GE"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?" \\ & = GE"M0:N: <= EEF"L;<;LOL"P:ME?"RNIL;?EF";< "= GE;N"HI<=N:H=?">IN"=GE">;N?="PEEQ"I>"PINQ"WibgdAgd">IN"T^!`j"ibhbA`g">IN"T^!hj"ibg`ATg">IN"T^!gj":<F"id^hAgg">IN"T^!\ZA" \end{split}$$
- HA B GE=GEN"=GE", E>E<F:<=?">:;9EF"=I"R:K"=GE"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?"

 =GE"HI<=N:H=O:9" ' \$ B %">IN":99"HILRE<?:J9E"GION?" PINQEF"JK">:;9;<M"=I"RNIREN9K"

 NEHINF":99"GION?"I>"PINQ":<F"JK">:;9;<M"=I"RNIREN9K"?ORR9ELE<="=GE"89:;<=;>>?[":<F"I=GEN"H9:??"LELJEN?["R;EHE"N:=E"E:N<;<M?A""
- FA B GE=GEN"=GE", E>E<F:<=?">:;9EF"=I"L:;<=:;<"HILR9E=E":<F":HHON:=E"NEHINF?"

 NEM:NF;<M"=GE"PINQ"I>"=GE"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?A""
- EA B GE=GEN"=GE", E>E<F:<=?">:;9EF"=I"RNI@;FE"=GE"89:;<=;>>?":<F"I=GEN"LELJEN?"

 I>"=GE"H9:??"P;=G"HILR9E=E":<F":HHON:=E"P:ME"?=:=ELE<=?A""
- B GE=GEN2"ORI<"HILR9E=;I<"I>"e^m"I>"=GE"PINQ"HI<=N:H=?2"=GE", E>E<F:<=?"
 >:;9EF"=I">O99K"NE;LJON?E"=GE"89:;<=;>>?":<F"I=GEN"H9:??"LELJEN?"=GE">O99"HI?="I>"=GE;N"
 =N:<?RIN=:=;I<"E_RE<?E?"=I"=N:@E9">NIL"=GE;N"GILE?";<"OE_;HI"=I"=GE", E>E<F:<=?["PINQ"9IH:=;I<";<"410;?;:<:2":?"NEcO;NEF"JK"=GE;N"PINQ"HI<=N:H=?A"

- B GE=GEN2" OR I <"HILR9E=; I <" I >" e^m" I >" = GE" P INQ" HI <=N: H=?2" = GE", E>E < F: <=?"
 >:;9EF"=I"RNIREN9K"R: K"=GE"89:;<=;>>?": < F" I = GEN"H9:??" LELJEN?" = GE"F:;9K"?OJ?;?=E < HE"
 : L IO <=?" > IN" E: HG" F: K" = GEK" ?RE <= "=N: @E99; < M" > NIL" = GE;N" GILE?"; <" O E_;HI" = I" = GE"
 , E>E < F: <=?["PINO"9IH:=;I <": <"410;?;: <: 2":?"NECO;NEF"JK"=GE;N" PINO"HI <=N: H=?A"
- GA B GE=GEN"=GE", E>E<F:<=?">:;9EF"=I"RNI@;FE"IN"I=GENP;?E"R:K">IN"=GE"89:;<=;>>?["
 :<F"I=GEN"H9:??"LELJEN?["NE=ON<"=N:<?RIN=:=;I<":<F"F:;9K"?OJ?;?=E<HE">IN"=GE;N"=N:@E9"

 J:HQ"=I" O E_;HI"ORI<"HILR9E=;I<"I>"ESE;N" P INQ"HI<=N:H=?A"

- *R3S11;Na") GE"<: LEF"89:;<=;>>?"P;99">:;N9K":<F":FECO:=E9K"NERNE?E<="=GE";<=ENE?=?"

 I>"=GE"H9:??A") GE"<: LEF"89:;<=;>>?"G:@E"=GE"?: LE";<=ENE?=?":?"=GE" LELJEN?" I>"=GE"H9:??":<F" P;99"
 @;MINIO?9K"RNI?EHO=E"=GE?E";<=ENE?=?"I<"JEG:9>"I>"=GE"H9:??A""CIO<?E9">IN"=GE"89:;<=;>>?";?"E_REN;E<HEF"
 ;<"G:<F9;<M":H=;I<?"JK"3S"T' "PINQEN?"=I"E<>INHE"=GE;N"N;MG=?"O<FEN"=GE;N"ELR9IKLE<="HI<=N:H=?":<F"
 G:?"G:<F9EF"<OLENIO?"H9:??":H=;I<?";<"=GE">EFEN:9"HION=??";<H9OF;<M"H9:??":H=;I<?"I<"JEG:9>"I>"3S

 T'"PINQEN?"JN;<M;<M"H9:;L?";L;9:N"=I"=GI?E"RNE?E<=EF";<"=G;?":H=;I<A""89:;<=;>>?q"HIO<?E9";?"RNER:NEF"
 =I":F@:<HE"9;=;M:=;I<"HI?=?"<EHE??:NK"=I"@;MINIO?9K"9;=;M:=E"=G;?":H=;I<":<F"=I"RNI@;FE"<I=;HE"=I"=GE"
 H9:??"LELJEN?"O<FEN"5EFEN:9"%O9E"I>"C;@;9"8NIHEFONE"TbWJZWbZA"
- eeA 89:;<=;>>?["RNIRI?EF"C9:??"LEE=?"=GE"NEcO;NELE<=?"I>"HEN=;>;H:=;I<"O<FEN"5EFEN:9"
 %O9E"I>"C:@:9"8NIHEFONE"TbWJZWbZA"
- e`A **CK3R4 J LO10; 3#4T#, 4 J J 40#U I 32ML4O2**A"") GE"cOE?=; I<?" I>"9: P" IN">: H="HILLI<"=I"

 =GE" H9:???!"; FE<=;>; EF": J I @E"; <" 8:N:MN:RG" eT?" RNEFIL; <:= E" I @EN": <K" cOE?=; I<?":> EH=; <M" I <9K"

 ; <F; @; FO:9" LEL J EN?A"""
- ehA) **IQ3KL4KLMN**A" ' " H9:??" :H=;I<" O<FEN" 5EFEN:9" %O9E" I>" C;@;9" 8NIHEFONE" TbWJZWbZ" ;?"

 ?OREN;IN"=I"I=GEN":@::9:J9E"LE=GIF?"I>":FaOF;H:=;<M"=G;?"HI<=NI@EN?K"JEH:O?E2"i e a ia:"
 - :A) GE"HILLI<";??OE?"I>"9: P":<F">: H=2":?" PE99":?"=GE"NE9:=;@E9K"?L:99"?;VE"I>"

 =GE";<F;@;FO:9" H9:??" LELJEN?q" H9:;L?2" ?OJ?=:<=;:99K" F;L;<;?G" =GE";<=ENE?=" I>"

HA +=";?"FE?;N:J9E"=G:="=GE"H9:;L?"JE"GE:NF";<"=G;?">INOL"JEH:O?E"=GE", E>E<F:<=?"
NE?;FE";<"=G;?"F;?=N;H=j":<F"

FA '" H9:??" :H=;I<" H:<" JE" L:<:MEF" P;=GIO=" O<FOE" F;>>;HO9=K" JEH:12.2457589.9143cm

$$\label{eq:GILE?"} \begin{split} &\text{GILE?"}; < \text{"OE_;} \\ &\text{HI} \text{"=I"=GE"aIJ?;} \\ &\text{=E?"}; < \text{"4IO;}?; : < :2\text{"} : < F"9IFM; < M"E_RE < ?E?"; < \text{"OI<=ENNEK2"OE_;} \\ &\text{HILR9E=;} < M"=GE"3S \end{split}$$

JA 5

h!A , E>E<F:<=?["JNE:HG"I>"=GE"ELR9IKLE<="HI<=N:H=?"H:O?EF"89:;<=;>>?":<F"=GE"I=GEN"
H9:??"LELJEN?"?OJ?=:<=;:9";

E:HG"I>"=GE"89:;<=;>>?":<F"=GE"I=GEN"H9:??"LELJEN?"=GE;N":H=O:9":<F"HI<?EcOE<=;:9"
F:L:ME?":<F"RNEaOFMLE<=";<=ENE?=j"

MA

```
"#$%&%'!(!
)*+, (!-./01/2!*.3405!
```

