### Tgrqtv'qh'vjg'Encuntqqo 'Uqekcn'Eqo rcev'Eqo o kwgg

Lcpwct { '52.'4247

#### Ogo dgt u

Oc{c'Lcucpqhh'\*eq/ej ckt+.'Eqqrkf i g'Rtqhguuqt'qh'J kuvqt{

Fcxkf 'Nckduqp'\*eq/ejckt+'Tqdgtv'KVI qrfocp'Rtqhguuqt'qh'Geqpqokeu

Fcxlf 'Ejctdqppgcw.'Hrgf 'Mcxrk'Rtqhguuqt''qh'Cuxtqrj {ukeu

Co cpf c'Enc{dewi j '\*gz"qhkekq+.'F gcp''qh'Wpf gti tcf wcvg''Gf wecvkqp="Uco wgn'\ go wttc{''It0'cpf'' Fqtku'\ go wttc{''Uvqpg'Rtqhguuqt''qh'Gpi nkuj

P c'Nk''Y kpqmxt'Hco kn('Rtqhguuqt''qh'Grgevtkecn'Gpi kpggtkpi ''cpf'Crrnkgf'O cyj go cykeu

Mj crgf 'Gn/Tqvc{j gd. 'Leo gu'Tkej ctf 'Igy gw'Rtqhguuqt 'qh'Ctcdke 'cpf 'Knrco ke 'Kpvgmgewcn'J kuvqt{

P kpc'\ kr ugt "\*gz "qhlkekq+:"F gcp"qh'Hcewn ("Chrcktu"cpf "Rrcppkpi

#### Rt gco drg

Y j cval'y g'r wtr qug''qh'c'J ctxctf "gf wecvkqpAP gxgt'\p'ikx\pi "o go qt { "j cu'c'y kf gt'tcpi g'qh'r gqr rg" r tguugf "y g'\puvkwwkqp'\hqt"eqo r gmkpi "cpuy gtu. "htqo "y kij kp''y g'\wpkxgtuk\{"cpf "y kij qw\0Cv' J ctxctf ."cu'pcvkqpy kf g."'y g''s wguvkqp''qh'y j gy gt''r gqr rg''ecp"gzr tguu''y gkt''r qnkkecn'qr kpkqpu" y kij qw'hgct''qh'uqekcn'qt'\puvkwwkqpcn'ucpevkqp''j cu''cwtcevgf "r ctvkewrct"cwgpvkqp. "ceeqo r cpkgf "d { "y qttkgu''cdqww''gzr nkek''cpf "ko r nkek'egpuqtuj kr ."kpenwf kpi "ugnh/egpuqtuj kr 0Vj g''J ctxctf "eqo o wpkv{"gzr tguugu''pgct/wpkxgtucn'uwr r qtv'hqt''y g''r tkpekr rg''qh'htgg''ur ggej "dww'f kuci tggu''cdqww'' j qy "dguv'y g'\puvkwwkqp"ecp"uwr r qtv'qr gp"gzr tguukqp'\kp"r tcevkeg0'Y j cvgxgt''y g''ecwugu''qh''gzr nkek'' cpf "ko r nkek''egpuqtuj kr "qp''eco r wu. "kv'ku''ergct''y cv'J ctxctf "j cup\po'\hqwpf "c''y c { 'vq''cf f tguu''y go "tqdwun(0Kp''y g''ur tkpi "qh'4246."qpn("55' "qh'i tcf wckpi "J ctxctf "Eqnrgi g'ugpkqtu''tgr qtvgf "y cv'' y g { "ci tgg''y kij "y g''uvcvgo gpv<'\overline{o}Khggn'htgg''q''gzr tguu''r gtuqpcn'hggnkpi u''cpf "dgnkghu''cdqw'' eqpvtqxgtukcn'\qr keu\overline{o}

Qwt'hlpf kpi u'tgxgcn'o qtgqxgt.''y cv'eqpegtpu'cdqw'y g''gz ygpv''q''y j kej ''uwf gpwi'cpf ''kpuntwevqtu'' hggn'htgg''vq''gzr tguu''y gkt''qr kpkqpu'kp''y g''ercuutqqo ''tgr tgugpv''qpn( ''qpg''co qpi ''c''dtqcf gt''ugv'qh'' s wgunkqpu''cdqw''y g''pcwtg''qh''uwf gpv'cecf go ke''gpi ci go gpv'cv'J ctxctf 0O cp{ "J ctxctf 'Eqmgi g'' uwf gpwi''tq''pqv'r tkqtkkl g''y gkt ''eqwtugu''cpf ''uqo g''x kgy ''gz vgpukxg''gz vtcewttkewrt ''eqo o ko gpwi'cu'' c''o qtg'hwhknkpi .''o gcpkpi hwn''cpf ''wughwi'cmqecvkqp''qh''y gkt''ko g='o quv'hcewn\{ ''xkgy ''uwf gpv'' ewttkewrt ''f kugpi ci go gpv'y kyj ''crcto 0'Vj g'HCU'uggmu''q''r tqxkf g''ŏc''vtcpuhqto cvkxg''gf wecvkqpcn'' gzr gtkgpeg.ö''dwv'kpuntwevqtuø'cpf ''uwf gpvuø'gzr gevcvkqpu''cdqwv'y g''egpvtcrkx\{ ''qh''y g''ercuutqqo ''ctg'' wpcrki pgf 0

C'uweeguuhwi'gf wecvkqp'tgs wktgu'c'uwduvcpvkcn'eqo o ko gpv'htqo 'uwwf gpvu. 'kpenwf kpi 'c' eqpukf gtcdng'kpxguvo gpv'qh'vko g'cpf 'f ggr 'kpvgngewcn'hqevu006f wecvkqp'uj qwrf 'ngcf 'ngctpgtu'vq' ewnkxcvg'o cp{ 'vcuvgu<'c'ur ktk'qh'kpvgngewcn'gzr nqtcvkqp. 'c'y kntkpi pguu'vq'gzej cpi g'kf gcu'qr gpn{ 'y kj 'q'j gtu. 'cp'cr r tgekcvkqp'hqt'vj g'xcnvg'qh'kp/f gr vj 'ngctpkpi .'ewtkqukv{ 'vq'r wtuvg'npqy ngf i g'vj cv'

o ki j v'ej cngpi g'r tgeqpegr vlqpu. 'cpf 'c'y kntpi pguu'\q'ej cpi g'qpgøu'r qkpv'qti'xkgy 'dcugf 'qp'pgy "
npqy ngf i g0C'uweeguuhwn'gf wecvlqp'ku'qpn( 'r quukdng'y j gp'\gcej gtu'o cng'ko r qtvcpv'r gf ci qi kecn'
eqo o koo gpvu'd{ "o qf grkpi "o cp{ "j cdksu'qti'o kpf <j qy "vq'kf gpvkti{ "tqdwuv. 'wpdkcugf 'kpuki j vu="j qy "
gthigevkxgn( "vq'f gr nq{ "vj cv'npqy ngf i g="j qy "vq'f kuewuu'kf gcu'kp'vj qwi j vlivn 'etkkecn'tki qtqwu. 'cpf "
qr gp/o kpf gf 'y c{u="cpf 'j qy "vq'ej cpi g'vj gkt 'qy p'o kpf 'cu'pgy "gxkf gpeg'dgeqo gu'cxckrcdng0'
Hkpcn( .'c'uweeguuhwn'gf wecvlqp'ku'qpn( 'r quukdng'y j gp''cecf go ke'ngcf gtu. 'cf o kpkntcvqtu. 'cpf 'qvj gt''
uqekgvcn'f gekukqp/o cngtu'hquvgt''yj g'kpuvkwwkqpcn'eqpf kwqpu''yj cv'gpcdng'uwxf gpvu''cpf 'vgcej gtu'\q''
hnqwtkuj 0

Y j cvzu'y g'r wtr qug'qh'c'I ctxctf 'gf wecvlqpA'Vq'dwlrf 'c'eqo o wplw{ 'qh'cecf go lecm{ 'gzegngpv.'' ewtlqwu.''cpf 'gpi ci gf 'luwf gpwl'y j q'ctg'gci gt '\q'ngctp='\q'gzr qug'y go '\q'y g'o quv'lphqto gf .'' tki qtqwu.''cpf ''gptlej lpi ''cecf go le''gzr gtlgpegu='\q''gs wlr ''y go ''y ky ''npqy ngf i g.''etklecn'\qqnu.''cpf '' j cdkul'qh'o lpf '\q''twr r qtv'eqpuvtwevlxg.''hwrhknlpi ''nkxgu''cpf ''ectggtu=''cpf '\q''r tgr ctg'y go ''hqt'c'' nlhgvlo g''qhi'qpi qlpi .''lpf gr gpf gpv'ngctplpi 0'Cu''y g'CCWR'y tqvg''lp'ku'3; 37'F genctcvlqp''qh'' Rtlpekr ngu.''y g'r qlpv'qh'cp'gf wecvlqp'ku'ŏpqv'\q'r tqxkf g\leftartun wwlx gpwl'y ky ''tgcf {/o cf g'eqpenwlqpu.'' dwl'q'tclp'y go ''q'y lpmlhqt'y go ugnxgu.''cpf ''q'r tqxkf g'y go ''ceeguu'\q'y qug'o cvgtlcnu'y j lej '' y g{ ''pggf 'kh'y g{ ''ctg'\q'y lpmlhpvgnki gpvn{0}3}

 $\label{eq:continuity} Vj g'tgr qtv'vj cv'hqmqy u'r tqxkf gu'c'f guetkr vkqp'qhi'vj g'r tqdngo u'vj cv'ewttgpvn( "gzknv'kp''J ctxctf øu" encuutqqo u'cpf "c'ugv'qhi'tgeqo o gpf cvkqpu'hqt'cf f tguukpi "vj go 0'Y g'uwr r qtv'tgegpvgtkpi " cecf go keu'cv'J ctxctf "cpf "r tqr qug'uvgr u'vq'etgcvg''c'encuutqqo "gpxktqpo gpv'o ctngf "d{ "kphqto gf " gpi ci go gpv'kp''y j kej 'kpuntwevqtu'cpf 'uwwf gpvu'o c{ "cevkxgn( "gzej cpi g'f kxgtug''xkgy u''cpf 'kp'' y j kej 'ugrh'egpuqtuj kr "gpf u0}$ 

#### 30'Ej cti g'cpf 'Rt qeguu

Vj g'Encuntqqo ''Uqekcn'Eqo r cev'Eqo o kwgg'\*EUEE+'y cu'ej cti gf ''d{ ''HCU'F gcp''J qr k'J qgmmtc'kp'' Hgdtwct{ ''4246''vq''ōf guetkdg''yj g''pcwtg''cpf ''r wtr qug''qh''yj g''HCU'encuntqqo .ö''cpf ''vq''f gxgmr '' uvcvgo gpvu''vq''i wkf g''uwf gpvu''cpf ''kpuntwevqtu''qp''ŏyj gkt''tqng''kp''eqpvtkdwkpi ''vq''c''xkdtcpv''ngctpkpi '' gpxktqpo gpv'b''y g''y gtg''cf f kkqpcm( ''ej cti gf ''vq''ōf gxgmr ''r tcevkecn'tgeqo o gpf ckqpu''hqt'' gpi gpf gtkpi ''c''xkdtcpv''ngctpkpi ''gpxktqpo gpv'kp''yj g''encuntqqo 0ö

Y g'kpvgtr tg√övj g'encuutqqo ö'kp''y g''o cppgt''r tqr qugf ''d{ ''y g''4245'GRE''Uwdeqo o kwgg''qp'' Encuutqqo 'Eqpf wev'ej cktgf ''d{ ''Rtqhguuqtu''Nqwku'O gpcpf ''cpf 'F cpkgng'Cngp.''ŏvq''o gcp''gngo gpvu'' qh'ic''eqwtug''\*kpenwf kpi ''cuuki po gpvu.''gzco u.''encuu''cevkxkkgu.''i tcf kpi .''cpf ''uwwf gpv'uwwf gpv'cpf '' uwwf gpv'vgcej gt''kpvgtcevkqpu+''kp''cm''nqecvkqpu'y j gtg''y g''eqwtug''vcngu''r nceg@

Y g"j grf "o qtg"'y cp"'y ktv{ "rkuvgpkpi "uguukqpu."Vqy p"J cmu."cpf "o ggvkpi uô cpf "gpi ci gf "kp" j wpf tgf u"qh"qyj gt "kphqto cn'eqpxgtucvkqpuô y kyj "eqo o wpkskgu"cetquu"y g"HCU~wpf gti tcf wcvg"i tcf wcvg"uwf gpvu"cpf "i tcf wcvg"uwf gpvu"qtngtu="licewnv{"cv'cm'tcpm="cpf" i tqwr u"kpenwf kpi "y g" Gf wecvkqpcn'Rqrke{"Eqo o kvvgg."yj g"I tcf wcvg"Rqrke{"Eqo o kvvgg."yj g"I gpgtcn'Gf wecvkqp" Eqo o kvvgg."Hcewnv{"cpf" yj g"Eqwpekn'qh'Ej cktu0"Y g"eqngevgf "cpf" cpcn(| gf "pwo gtqwu"

<sup>&</sup>lt;sup>3</sup>'Co gtkecp'Cunqekcvkqp"qh'Wpkxgtuk\("Rtqhgunqtu0oF gerctcvkqp"qh'Rtkpekr rgu'qp'Cecf go ke'Higgf qo "cpf 'Cecf go ke'' Vgpwtg0o"Dwngvkp'qh'Vj g'Co gtkecp'Cunqekcvkqp"qh'Wpkxgtuk\(\frac{1}{2}\) 'Rtqhgunqtu'3.'r v03'\*F gego dgt''3; 37+\'r r 039/5; 0

f cvc'uguu'kpenwf kpi "\*cpqp{o qwu+'uwtxg{u'qh'J ctxctf 'Eqngi g'uwf gpvu.'I UCU'uwf gpvu.'hcewn{ 'cv' cm'tcpmu.'cpf 'Eqngi g'cpf 'I UCU'enwo pk0'Y g'cnuq'cf f gf 'wy q's wguvkqpu'vq'yi g'S 'Eqwtug' Gxcnwcvkqp'I wkf g'vq'i cwi g'eqwtug/ngxgn'r gtegr vkqpu'cdqw'qr gp'kps wkt {0Vj g'cr r gpf kz'r tqxkf gu'c' f gvckrgf 'rkuv'qh'vj gug'uwtxg{u.'kpenwf kpi 'uvcvkuvkecn'uwo o ctkgu'qh'vj g'uwtxg{'tguwnu0C'uwo o ct{'qh' ng{ 's wcpvkcvkxg'hkpf kpi u'cr r gctu'kp'Ugevkqp'5'qh'vj ku'tgr qtv0

Y g'r wtuwgf "qwt'tgugctej "cmpi ulf g''y cv'qh''y g''Qr gp''Kos wlt { "cpf "Eqpunt we kxg'F kcmi wg''Y qt mkpi " I tqwr ."ugv'wr "d{ "Rtgulf gpv'Crcp"I ctdgt "cpf "Rtqxquv'Iqj p'O cpplpi "kp''Cr tkn'4246."cpf "ej cktgf "d{ " Rtqhguuqt "Gtle "Dggtdqj o "cpf "F gcp"Vqo kmq "Dtqy p/P ci kp="Qwt'tgr qtv'dwkrf u'qp''y g'' tgeqo o gpf cvkqp"qh''y cv''Y qt mkpi "I tqwr "kp''kut'<u>Oevqdgt''4246''tgr qtv'</u>'y cv''gcej "J ctxctf "uej qqn'' f gxgmqr 'pqto u.'r qnkelgu."cpf "qqnu'hqt'r tqo qvkpi "ŏqr gp''cpf "eqpunt we vkxg''ngctpkpi "gpxktqpo gpvu\0 o

#### 40'Hlof loi u

Vj g'EUEE'cf f tguugf ''y g'eqpegr v'qh'c'öercuutqqo ''uqekcn'eqo r cevö'\*tcyi gt''y cp'r j tcugu'nkng'õekxkn' f kueqwtugö''qt'ökpvgngewcn'xkcnk{ö+''dgecwug''y g'y cpvgf ''vq''j gct'htqo ''uwwf gpvu''cpf ''kpuvtwevqtu'' cdqwv'c''dtqcf gt''tcpi g''qh'y c{u''kp''y j kej ''y g{"crrtqcej ''y g''ercuutqqo ''ngctpkpi ''gpxktqpo gpv0Qwt'' hkpf kpi u''uwi i guv'y cv''y j krg''y g''kuuwgu''qh'f kuci tggo gpv''cpf ''htgg''gzej cpi g''qh'kf gcu''kp''y g'' ercuutqqo ''ctg''tgcn''eqpegtpu''cdqww''qr gp''kps wkt { ''pguv'y ky kp''c''rcti gt''ugv'qh''ej cngpi gu''y cv'hcewn{ ''cpf''uwwf gpvu''gpeqwpvgt''kp''J ctxctf øu''ercuutqqo u0

Qwt "qwxtgcej "cpf "f cvc"cpcn( uku'tgxgcrgf "vj cv'wpf gti tcf wcvgu'tgr qtv'vj cv<

- " y g{"o c{"j gukscvg"vq"ur gcm"wr "kp"encuu"dgecwug"uqo gqpg"y km"f kucrrtqxg"qh"yj gkt"qr kpkqpu" cpf."cu"c"eqpugs wgpeg."yj cv"yj g{"o c{"dg"uj wppgf"uqekcm("\*kpukfg"cpf lqt"qwukfg"yj g" encuu+0
- "" y g{"o c{"j gukevg"vq"ur gemlwr "kp"eneuu"dgeewug"yj g{"o c{"dg"go detteuugf "d{"i kxkpi "yj g" y tqpi "cpuy gt"vq"c"heewen's wguvkqp"\*g0 0"ŏy j cv'ku"yj g"f gtkxcvkxg"qh'ukp\*z+Aö+"qt"d{" tgxgenhpi "c"neem'qh'wpf gtuvcpf kpi "d{"cumkpi "c"enetkh{kpi "s wguvkqp0
- "' y g{ "o c{ "y tkg"\q"crki p"y kj "\j g"r gtegkxgf "r qrkkecnlkf gqrqi kecn'r tghgtgpegu"qh'\j gkt" kpurtwevqtu"kp"qtf gt"\q"i gv'c"f guktgf "i tcf g0
  - y g{ "o c{ "r kemlencuugu"qt "ugeskqpu"y cv"cnki p"y kij "y gkt "r tg/gzkuskpi "qr kpkqpu0"
- y g{ "o c{ "r kem'encungu"o qtg"qp"y g'dcuku qh'r gtegkxgf "gcukpguu. "dqy 'kp'\gto u'qh'y g'j qwtu qh'y qtm'cpf 'y g'hngnkj qqf "qh't gegkxkpi "c'j ki j 'i tcf g. 'y cp 'qp 'kp ygngewcn'kp ygtguv0
- "" uqo g"xkgy "eqmgi g"cu"cp"qrrqtwpkx{ "\q"tghkpg"f ghgpugu"qh"\j gkt"gzkuxkpi "rqnkxkecn" xkgy rqkpvu."tcvj gt"\j cp"cu"cp"qrrqtwpkx{ "\q"gzrmqtg"pgy "rgturgevkxgu."f gtkxgf "htqo "kpvgtcevkqpu"y kj "rggtu"cpf "kpvutwevqtu0"
- "i y g{"o c{"uj {"cy c{"htqo "f khhlewn/eqpxgtucvkqpu."dqy "kpukf g"cpf "qwukf g"encuutqqo u."cpf "f q"pqv'ugg"gxgp"c"f kpkpi "j cm'qt"c'tqqo kpi "i tqwr "cu'pgeguuctkn{"c"ugwkpi "kp"y j kej "y j g{"ecp"j cxg"eqpxgtucvkqpu"cetquu"r qnkskecn'f khhgtgpegu0
- yj g{ "o c{ "\gpf "\q"ugi tgi c\g" \kp\q"uqekcn\i tqwr u"y kij "rkng/o kpf gf "qr kpkqpu0

#### I tcf wcvg'uwf gpwu'uckf ''yj cv<

- "' yi g{ "uqo gwo gu'hggni'r tguuwtg" vq"cr r gct"npqy ngf i gcdng. "y j kej "f gvgtu" yi go "htqo "cumkpi " enctkii{ kpi "s wguvkqpu" kp"encuutqqo "ugwkpi u"hqt" hgct" qh"uggo kpi "wpr tgr ctgf "qt" nguu" kphqto gf " yi cp" yi gkt" r ggtu0
- "" hcewn{ "uqo gwo gu"etgcvg"c"encuutqqo "ewnwtg"yi cv"ko r nkekn{ "f kneqwtci gu"enctkh{ kpi " s wgunkqpu"d{ ""qhigp"wpkpvgpvkqpcm{ +"guwcdnkuj kpi "c"pqto "qh"s wgunkqpu"yi cv"ctg"j ki j n{ " uqr j knnkecvgf "cpf "nkmgn{ "vq"tgxgcn"yi cv"yi g"uwwf gpv"cumkpi "yi g"s wgunkqp"j cu"cntgcf { " o cuvgtgf "yi g"o cygtkcn"dgkpi "vcwi j v0
- c'uo cm'i tqwr ''qh'iuwf gpwi'o c{ ''uqo gwo gu'eqo g''vq'r rc{ ''cp''qwwlk gf ''tqrg'kp''cumkpi '' s wguvkqpu''kp''ercuu''cpf ''cpuy gtkpi ''yj g''r tqhguuqtøu''s wguvkqpu0
- cf cr vkpi "vq"encuutqqo "r ct vkekr cvkqp"pqto u"ecp"dg"ej cmgpi kpi "hqt"kpvgtpcvkqpcn'uwvf gpvu." f wg"vq"ncem'qhi'hco krkctkv{ 'y kyj "vj g"gf wecvkqpcn'ewnwtg0
- "' yj g{ "uqo gwlo gu'y qtt { "cdqw/kpcf xgtvgpvn{ "ecwukpi "qhhigpug'kp' wukpi "vgto kpqmi { "tgrcvgf "vq" tceg."gyj pkekv{ .'tgrki kqp."ugz wcrkv{ "qt'i gpf gt'kf gpvkv{ 0
- "" kp"'y gkt"tqrg"cu'\gcej kpi 'hgmqy u'\VHı+: 'y g{ "y qtt { "y cv'y gkt 'wpf gti tcf wcvg"uwf gpwu" o kucwtkdwg'my gt"i tcf gu'\q"VH'dkcu'tcyj gt 'y cp''y g''s wcrkv{ "qh''y g'y qtm'dgkpi 'f qpg0
- "" yj g{ "ctg"xgt { "eqpegtpgf . "cu"VHu. "cdqw'yj gkt"\gcej kpi "gxcnwc\kqpu0'Vj g{ "uqo gvko gu'hggn' yj cv'yj g{ "ecpøv'i kxg"ecpf kf 'hggf dcem'\q'yj gkt "uwf gpvu'y kyj qwv'lgqr ctf k kpi "yj gkt "ueqtgu0
- "" yj g{"o c{"y qtt{."cu"VHu."yj cv'eqxgtkpi "eqpvtqxgtukcn'vqr keu'kp"encuu'y km'ngcf 'vq'pgi cvkxg" uwxf gpv'nggf dceni'cpf "cmgi cvkqpu"qh'idkcu0

#### Kpurtwerqtu'pqvgf 'vj cv<

- "" wpf gti tcf wcvgu 'qhvgp 'f qpøv' cwgpf 'ercuu0
- "" uwwf gpvu'qhvgp'f qpøv'f q'o cp{ ''qh'yj g''cuuki pgf 'tgcf kpi u0
  - uwf gpw'uggm'qw'encuugu'yj cv'ctg'tgrwgf ''vq'dg'r ctvkewnctn( ''gcu( ''\*õi go uö+0
- "" uwwf gpwu"ctg"qhwgp"qxgty j gm gf "d{"vj g"eqo o ko gpwu"vj g{"o cmg"vq"pqp/cecf go ke" cewkxkwgu. "kpenwf kpi "cvj ngwkeu. "rtg/rtqhguukqpcn'qti cpk| cwkqpu. "uqekcn'enwdu. "cpf "o {tkcf "qvj gt "gzvtc/ewttkewnct "cewkxkwguleqo o ko gpwu0
- "" uwwf gpvu''ctg'j wpi t{"hqt'r tg/r tqhguulqpcn'i wlf cpeg''cpf ''uggmlkv'qwulf g''y g''encuutqqo ''cpf'' ewttlewnwo "\*g0 Ohtqo ''r ggtu."gz vtc/ewttlewnct ''qti cpl{ cvlqpu."cpf ''htqo ''go r nq{gtu+0
- o cp{"uwf gpwi'j cxg"eqo g'vq"gzr gev'o qtg"hrgzkdkrkv{"cdqw/cwgpf cpeg'tgs wktgo gpwi'cpf" eqwtugy qtm'yj cp"y cu'v{r kecn'r tg/EQXKF0
- "" uwf gpwi'j cxg'tkukpi "gzr gevckqpu'hqt"j ki j "i tcf gu. "dw/hcmkpi "gzr gevckqpu'hqt"ghqtv0
  "" uqo g'uwf gpwi'ctg'wpeqo hqtvcdrg'y kij "ewttkewrct"eqpvgpv'ij cv'ku'pqv'crki pgf "y kij "ij g"
  uwf gpwu'o qtcrihtco gy qtm0
- "" uqo g''ycej kpi 'hgmqy u'i tcf g''qq''gcukn( ''dgecwug''y g{ 'hgct''pgi c\kxg''uwf gpv'hggf dcen0 uqo g''ycej kpi 'hgmqy u'gkyj gt''eqpuekqwun( ''qt''wpeqpuekqwun( ''cmqy ''y gkt''r qnkkecn'kf gqmi { ''vq''r rc{''c'tqrg''kp''y g''y c{ ''y g{ ''gxcnxcyg''uwf gpvu''qt''r tgugpv'eqwtug''o cygtkcn0

Vj gug'kunwgu'ctg'wpf gto kpkpi "vj g'ghhge kxgpguu'qh'encuutqqo "vgcej kpi "cpf "ngctpkpi 0'Uwf gpv'ugh'egpuqtuj kr "j cu'cv'ngcuv'hqwt "cf xgtug'eqpugs wgpegu0'Hktuv."uwf gpwu'ctg"pqv'ngctpkpi "cpf "r tcevkekpi "j qy "vq"ur gcm'cdqww'vqr keu'vj cv'ctg'htcwi j v."r qrkskecm{ "qt"qvj gty kug0'Ugeqpf ."uwf gpwu'ctg'pqv'ngctpkpi "j qy "vq"cum'enctkh{kpi "s wguskqpu'\*kpenwf kpi "vj g"ko r qtvcpv'cdkkw{ "vq"cempqy ngf i g"vj cv'v y g{"ctg"eqphwugf "cdqww'uqo gvj kpi +0'Vj ktf ."uwf gpwu'ctg"o kuukpi "qr r qtwpkskgu'vq"j gct'vj g"r gtur gevkxgu"qh'qvj gt'uwf gpvu'y kyj "f khhgtgpv'xkgy r qkpvu0'Hqwtyj ."hcewn{"ctg"pqv'j gctkpi "htqo"

uwf gpul'y j q'ctg'hquv'qt'eqphwugf .'r qvgpvkcm{ 'i kxkpi 'hcewn{ 'vj g'hcnug'ko r tguukqp'vj cv'encuutqqo '' eqo r tgj gpukqp'ku'j ki j gt'vj cp'kv'cewcm{ 'ku.'cpf 'ko r gf kpi 'kpuvtwevqtuø'cdkrkv{ 'vq'kf gpvkh{ 'vj g'' ur gekhke'eqpegr vu.'o cvgtkcnu.'qt'o gvj qf u'vj cv'uvwf gpvu'ctg'uvtwi i rkpi 'y kyj 0'Uqo g'qh'vj gug'' r tqdrgo u'ctg'co r rkhkgf 'y j gp'uvwf gpvu'eqo g'vq'encuu'wpr tgr ctgf .'dgecwug'vj g{ 'ctg'vj gp'gxgp'' o qtg'hkngn{ 'vq'dg'eqpegtpgf 'cdqwv'cunkpi 's wguvkqpu'vj cv'o ki j v'tgxgcn'vj gkt'eqphwukqp'qt'ncem'qhi' r tgr ctcvkqp0

C'o clqtk/{ "qh'uwf gpuu"cpf 'hcewn/{ "y g"j gctf 'htqo "ci tgg" y cv'J ctxctf 'Eqmgi g'uwf gpuu"f q"pqv' r tkqtkk/t g"y gkt "cecf go ke"gzr gtkgpeg0'Hqt"uwf gpuu"y j q"ctg"hqewugf "r tko ctkn/t "qp"gz vtcewttkewrct" cevkxkkgu. "y ku"ecp"dg"c"hgcwtg=hqt"hcewn/{ ."kv'ku"i gpgtcm/t"c"dwi 0

Gzknkpi "kpegpvkxg"untwewtgu"r wnikp"eqpvtct { "fktgevkqpu00 cp{ "ficewn\{"y kuj "y cv'uwf gpvu"r ncegf "c" j ki j gt"r tkqtkx\{ "qp"yi gkt"eqwtugy qtm00 Dwi'yi g"r gtegkxgf "eqppgevkqp"dgw ggp"eqwtug"gptqmo gpv" pwo dgtu"cpf "eqwtug"gxcnwcvkqp"ueqtgu"y kyj "y qtmqcf "cpf "i tcf kpi "hqtdgctcpeg"ngcf u"hcewn\{"vq" cuuki p"nguu"y qtmicpf "i tcf g"o qtg"ngpkgpvn\{0 Uqo g"f gr ctvo gpvu"nggni'r ctvkewrct"r tguuwtg"vq"nggr " eqwtug"gptqmo gpvu"j ki j "kp"qtf gt"vq"o cng"yi g"ecug"hqt"pgy "vgpvtg/vtcemi'r qukkkqpu."i tcf wcvg" uwxf gpvu."cpf "qyi gt"tguqwtegu0

O cp{"uwf gpul'tgr qtv"j ki j "ngxgnu"qh"cpzkgv{"cpf "uvtguu0"Vj g"r gtegr vkqpô tgcn"qt "ko ci kpgfô vj cv" tqwgu"vq"r tqhguukqpcn"uweeguu"eqo g"kp"ncti g"r ctv"xkc"cevkxkkgu"qwukf g"vj g"encuutqqo "gpeqwtci gu" j gcx{"gzvtcewttkewnct"eqo o ko gpvu"cpf "nguu"gpi ci go gpv"y kj "eqwtugy qtn0"I tcf g"kphncvkqp"cpf" eqo r tguukqp"j gki j vgpu"uwvf gpv"y ctkpguu"cdqwv"vcnkpi "eqwtugu"kp"y j kej "vj g{"tkum"i gwkpi "nqy gt" i tcf gu0

#### 50'Uwtxg{'Tguwnuk

Qwt "eqo o kwgg"cpcn{| gf 's wcp\kc\kxg"cpf 's wcrk\c\kxg"\qr gp"\gz v+"tgur qpugu'htqo "grgxgp"\uwtxg{u<

#### Wpf gti tcf wcvgu'\*J ctxctf 'Eqngi g+

- 30' Ugpkqt'Uwtxg{'\%i tcf wc\kpi '\ugpkqtu+
- 40' Tgukf gpvkcni'Nktg''Uwtxg{"\"Uqrj qo qtgu.''Lvpkqtu.''cpf''Ugpkqtu+
- 50' Cf xkukpi 'P gw qtm'Uwtxg{ '\*Hktuv'[ gct'uwf gpw+
- Wpf gti tcf wcyg'Uwtxg{'\sy tkygp'd\{'\sy g'EUEE=\cm\wpf gti tcf wcygu+
- 70' S "Eqwtug" Gxcnwcwlqp "Uwtxg{ "qh'uwf gpwu'kp 'wpf gti tcf wcvg'eqwtugu '\*wy q'pgy 's wguwkqpu'' y tkwgp'd{ 'vj g'EUEE'tgrcwkpi 'vq'ercuutqqo 'ur ggej ="cm'wpf gti tcf wcvgu+

#### I tcf wcyg'trwf gpvt/\*Mgppgyj 'E0I tlilip'I tcf wcyg'Uej qqriqli'Ctvt'cpf 'Uelgpegu+

- 80' I UCU'Gzk'Uwtxg{
- 90' I UCU'Uwf gpv'Uwtxg{"\*y tkwgp"d{"yj g"EUEE+
- : 0' S 'Eqwtug' Gxcnwc wlqp' Uwtxg{ "qh'uwf gpwl' kp' eqwtugu'r tko ctkn{ 'hqt'i tcf wcvg' uwf gpwl' \*y q' pgy 's wgwkqpu'y tkwgp' d{ 'yj g' EUEE' tgrc wkpi '\q' ercuutqqo ''ur ggej +

#### Hcewn{ ''Hcewn{ 'qh'Ct w'cpf 'Uelgpegu+

; 0' Hcewn/{ "Uvtxg{ "y tkwgp"d{ 'y g'Qr gp'Kps wkt{ "cpf 'Eqpuvtwevkxg'F kcmi wg''Y qtmkpi 'I tqwr +

# Cnwo pk\*I ctxctf 'Eqngi g'cpf 'Mgppgyj 'E0I tkhlp'I tcf wcvg'Uej qqrlqhl'Ctw'cpf 'Uelgpegu+" 320'I ctxctf 'Eqngi g'Cnwo pk'Uwtxg{ "\*y tkwgp"d{ "y g'EUEE"cpf "hkgrf gf "vq"Eqngi g'Cnwo pk+" 330'I UCU'Cnwo pk+Uwtxg{ "\*y tkwgp"d{ "y g'EUEE"cpf "hkgrf gf "vq"I UCU'Cnwo pk+

Cm'qh'y g''s wgurkqpu'htqo "y g''uwtxg{u''cdqxg''ctg''r tqxkf gf "y ky "tgur qpug''cdwrcvlqpu'kp"y g''f cwc" cr r gpf kz "qh''y ku''tgr qtv0'Kp"y g''dqf { "qh'y g''tgr qtv''y g'hqewu''qp"ugrgevgf ."tgr tgugpvcvkxg'tguwnu0'Y g'' hqewu''hktuv''qp"y g''Ugpkqt"Uwtxg{."hkgrf gf "gcej "O c { "vq"i tcf wcvkpi "J ctxctf "Eqnrgi g''uwf gpvu0'V j ku'' uwtxg{ "j cu''cp": ; ' "tgur qpug''tcvg''\*4246"uwtxg{="P"?"38: 4+"y j kej "ku''c" j ki j gt''tgur qpug''tcvg''y cp" y g''qy gt''uwtxg{u''hkurgf "cdqxg0'Y g''tgr qtv'tguwnu'htqo "dqy "y g''encuugu''qh'4245"cpf "4246"kp"ecugu" y j gtg''y g''uco g''s wgurkqpu''y gtg''cungf "qh'dqy "encuugu="cpf "htqo "y g''encuu'qh'4246"qpn( 'hqt''y qug'' y cv'y gtg''pgy 0T gur qpugu''q''y g''ukz''s wgurkqpu''y cv''ctg''tgrgxcpv''q''y g''y qtm'qh'y g''EUEE"ctg'' rtgugpvgf "kp"Vcdng''3''dgnqy 0\*Vj g''cpcn{uku'y cu''eqpf wevgf "d{"'y g''HCU'Kpurkwkqpcn'Tgugctej "Qhhkeg0+"P qvg''y cv''uqo g''qh''y gy'ercuutqqo "ur ggej "j cu''untqpi "ko r rkecvkqpu''hqt''ercuutqqo "ur ggej

Vcdrg'30T grgxcpv's wgwlqpu'lt qo 'vj g'Encur'qh'4245'cpf '4246'Ugplqt 'Uwt xg{ u

S wgurkqp"Vgzv	[ gct	Uvtqpin{" Fkucitgg	Ekrei taa	Uqogyjcv Fkucitgg	'Uqo gy j cv' Ci tgg	Citgg	Utqpi n(" Ci tgg
D WELVELY	[ Set	1 Naci tgg	1 Nucl 188	1 Nucl 188	Crigs	Crtgg	Crtgg
Khggrihtgg"q"gzrtguu'r gtuqpcrihggrkpi u" cpf "dgrkghu"cdqwdeqpvtqxgtukcri\qrkeu	4246	32'	36'	37'	4: '	46'	;'
	4245	8'	32'	34'	48'	53'	37'
Khggn'eqo hqtvcdng"gzrtguukpi "qrrqukpi " xkgy u"qp"eqpvtqxgtukcn'vqrkeu"kP"O[	4246	:'	35'	39'	49'	47'	32'
EQWIUGU	4245	9'	35'	3;'	48'	46'	34'
Klaggnieqo hqtvodng "gzrtguulopi "qrrqulopi " xlegy u"qp "eqpvtqxgtulcn"vqrleu "AP" O[" TGUKFGP VICN"EQOOWPKV[	4246	;'	34'	39'	49'	48'	32'
Kqpn("rkng"\q"gpi ci g"UQEKCNN[ "y kj " kpf kxkf wcnı"y j q"uj ctg"r qrkkecri'qt"uqekcri' xkgy r qkpwi'uko krct"\q"o kpg0	4246	:'	43'	42'	47'	3; '	9'
K'y qwf "cwgpf "c" 'cmi'd { "C EQP VTQXGTUKCN" URGCMGT "Y J QUC XKGY RQKP V"KU'F KHHGTGP V"VJ CP" OKP G"qp"c" 'qr ke" yj cv'ku'ko r qt vcpv' q" o g0	<sup>5"</sup> 4246	6'	9'	34'	45'	55'	43'
Kj cxg"gzrtguugf"qrrqukpi 'xkgy u'qp" eqpvtqxgtukcn'\qrkeu"YJGP"KHGNV"KV	4246	5'	7'	33'	4; '	59'	37'
Y CU'IO RQT VCP V''VQ'F Q''UQ	4245	5'	;'	35'	53'	52'	35'

Uqwteg<'HCU'Kpuvkwwkqpcn'Tgugctej.'Jctxctf'Wpkxgtukv{0

 $\label{thm:condition} Vj g'Ugpkqt''Uwtxg\{''cnnq''cumu''uqo g'f go qi tcrj ke''s wguvkqpu''cpf''o gti gu''y g''uwtxg\{''tguwnu''y kyj''' qyj gt''r tg/gzkuvkpi ''cf o kpkuvtcvkxg''tgeqtf u''y cv'eqpvckp''f go qi tcrj ke''kphqto cvkqp0'Vcdng''4''tgrqtwu''' y g''f kuvtkdwkqp''qh''r qnkxkecn'xkgy r qkpvu''hqt''y qug''tgur qpf gpwu'y j q''r tqxkf gf''y go ''*hktuv'tqy +."cpf'' y kyj kp''gcej ''uwtxg{gf''f go qi tcrj ke''i tqwr ''kp''uwdugs wgpv''tqy u0''*Gcej ''tqy ''uwo u''vq''322' ''y j gp'' tqwpf kpi ''ku''grko kpcvgf 0+$ 

#### Vcdrg'40Rqrlslecrixlgy r qlpvu'qh'Encun'qh'4246'Ugplqt 'Uwt xg{

	Nkdgtcn'qt" Xgt{" Nkdgtcn	O qf gtcvg1" O kf f rg"qh" yj g"Tqcf	Eqpugtxcvkxg"qt" Xgt{" Eqpugtxcvkxg	Uqo gyj kpi "gnıg1" J exgpød"yj qwi j v'edqwd'kd" O kudpi	Vqvcn' Tgur qpugu
Cm'Ugpkqtu	78'	48'	;'_	32'	38: 4
NI DVS	98'	37'	4'	9'	5:;
Hktuv'I gp	7; '	48'	8'	32'	4: ;
Ngy 'Kpeqo g	7; '	48'	6' _	33'	544
Tge'C yi ngvgu	53'	5: '	43'	; '	435
WTO	84'	42'	7'	33'	585
Y j kvg	74'	48'	35'	; ¹	824
Kovgtpcvkqpcn	67'	54'	33'	32'	395

Uqwteg<HCU'Kpurkwwkqpcn'Tgugctej.'Jctxctf'Wpkxgtukv{

Vcdng'5'r tgugpwi'cpuy gtu'vq''y g''ur ggej ''s wguvlqpu''qp''y g''4246''Ugplqt''Uwtxg{0'Vj g''r gtegpvci gu'' uj qy p''tgr tgugpv''y g''htcevlqp''qh''tgur qpf gpwi''y cv'ōCi tggö''qt''ōUvtqpi n(''Ci tggö''y ky ''y g''tgngxcpv'' uwcvgo gpv0'Vj ku''vcdng''tgxgcni''y cv'uwf gpwi'y j q''kf gpvkh{"cu''ōNkdgtcnö''ctg''uvcvkuvlecm{"uki plkhecpvn{" o qtg''eqo hqtvcdng''f kuewuvlpi ''eqpvtqxgtulcn'\qr keu''qp''eco r wu''y cp''gky gt''ōO qf gtcvgö''qt'' ŏEqpugtxcvkxgö''uwf gpw0\pyP qvg''y cv''y g''ecvgi qt{"ŏNkdgtcnö''eqo dlpgu''ōNkdgtcnö''cpf ''ōXgt{" Nkdgtcnö''cpf ''y g''ecvgi qt{"ŏEqpugtxcvkxgö''eqo dlpgu''ōEqpugtxcvkxgö''cpf ''ōXgt{"Eqpugtxcvkxgö''eqo dlpgu''ōEqpugtxcvkxgö''cpf ''ōXgt{"Eqpugtxcvkxgö''bq

## Vcdrg'50Ugpkqt 'Uwtxg{ '\*4246-KRgt egpvci g'qh't gur qpf gpvu'cpuy gt kpi 'δCi t ggö'qt 'δUvt qpi r{ "Ci t ggö

	Khegnihtgg''\q" gzrtguu'rgtuqpen' hegnlpi u'cpf 'dgnleh cdqw'' eqpvtqxgtulcn' \qrkeu	Khggnieqo hqtvcdng" gzrtguukpi "qrrqukpi " xkgy u"cdqww" eqpvtqxgtukcn'vqrkeu'kp" o {"encuugu	Khggn'eqo hqtvcdrg" gzrtguukpi "qrrqukpi " xkgy u'cdqwv" eqpvtqxgtukcn'vqrkeu'kp o { "tgukfgpvkcn' eqo o wpkkgu	qiiquipi xigy u cuqwi
Cm'Ugpkqtu	55'	57'	57'	74'
<b>O</b> crg	54'	57'	56'	73'
Hgo crg	56'	56'	58'	75'
NI DVS	65'	67'	65'	85'
WTO	53' _	52'	55'	73'
Hkuv'I gp	56'	62'	5: '	75'
Ngy 'Kpeqo g	55'	56'	57'	74'
<b>K</b> pvgtpcvkqpcn	56'	64'	5: '	77'
Nkdgten	63'	62'	63'	78'
O qf gtcvg	47'	4; '	4; '	69'
Eqpugtxcvkxg	39'	3: '	3; '	73'

Uqwteg<"HCU"Kpurkwrkqpcn"Tgugctej."Jctxctf"Wpkxgtuk/

Vcdrg'60S 'Eqwt ug'Gxcnvcvlqp's wgwlqpu'cdqwv'ercuut qqo 'erlo cvg'\*urt lpi '4246+

S wgurlqp"Vgzv	Uxtqpin{ Fkucitgg	Fkucitgg	P gkıj gt'Ci tgg" pqt'F kıci tgg	Ci tgg	Ustqpi n{ " Ci tgg
Kp''y ku''eqwtug."o quv'uwf gpw''rkurgp" cwgpvkxgn{''y ky ''cp"qr gp"o kpf ''cpf ''c" y knrkpi pguu''vq''ej cpi g''y gkt''r qkpv''qh''xkgy ''cu'' y g{''rgctp''o qtg''cdqw''y g''vqr ke0	3'	4'	:'	53'	7; '
Kp'vjku'eqwtug'™kpenwfkpi 'ugevkqpu+''Khggn' eqohqtvcdng''gzrtguukpi 'o{'xkgyu''qp'' eqpvtqxgtukcn'vqrkeu0	3'	5'	33'	4; '	78'

Vj g"f cvc"kp"Vcdng"6"r tgugpvu"c"o qtg"r qukkxg"r kewtg"vj cp"vj g"f cvc"htqo "vj g"Ugpkqt"Uwtxg{0Cv" ngcuv'vy q"j {r qvj gugu"o gtkv'hwtvj gt"tgugctej 0'Hktuv."vj g"s wguvkqpu"qp"vj g"Ugpkqt"Uwtxg{"ctg"xci wg0' KVku'r quukdng"vj cv'c"uo cm'pwo dgt"qh'dcf "gzr gtkgpegu"ngcf "tgur qpf gpvu"vq"i kxg"pgi cvkxg"cpuy gtu" vq"vj g"Ugpkqt"Uwtxg{"dgecwug"tgur qpf gpvu"ctg"kpvgtr tgvkpi "vj g"Ugpkqt"Uwtxg{"s wguvkqpu"vq"o gcp" õj cxg"{qw'j cf ö"cp"cf xgtug"gzr gtkgpeg"y j krg"cv'J ctxctf "Eqnrgi g0'Kt'uq."cpf "kh'dcf "gzr gtkgpegu"ctg" tgncvkxgn{"tctg."o qtg"i tcpwret"s wguvkqpu"virkng"vj g"qpgu"cungf "qp"vj g"S "Uwtxg{+"y qwrf "{kgnf "rguu" pgi cvkxg"cpuy gtu0

Qp"yi g"qyi gt"j cpf ."s wgurkqpu"qp"yi g"S "o c{"tghrgev"yi g"ghhgewi"qh"ugrhugrgevkqp"kpvq"xkgy r qkpv" crki pgf "ewttlewc0"Ur gekhlecm{."uwxf gpwi"htgs wgpvn{"vqnf "wu"yi cv"yi g{"ugrgevgf "eqwtugu"yi cv"cnki p" y kij "yi gkt"r qnkkecn"dgnkghu"dgecwug"yi g{"ctg"chtckf "qh"dgkpi "uj wppgf "qt"i tcf gf "cf x gtugn{"kp" eqwtugu"y j gtg"yi gkt "dgnkghu"ctg"wpcnki pgf "y kij "yi qug"qh"r ggtu"cpf "kpuntwevqtu0"Vq"yi g"gzvgpv"yi ku"ku" vtwg."y g"gzr gev"vq"hkpf "yi cv"uwxf gpwu"y knitcvg"r qukxkxgn{"yi g"ur gekhle"eqwtugu"yi cv"yi g{ øxg"ej qugp" vq"cng."gxxgp"kh"uwxf gpwu"o ki j v"xkgy "yi g"gf wecvkqpcn"gpxktqpo gpv"cu"dt qcf nf"r tqdngo cvke0"Uqo g" uwi i gurkxg"uwr r qtv"hqt"yi ku"j {r qyi guku"eqo gu"htqo "tgi tguukqp"cpcn{uku"qh"yi g"S "f cvc0"Ur gekhlecm{." uwxf gpwu"gxcnwcvkpi "eqwtugu"yi cv"yi g{"vcng"cu"grgevkxgu"tcvg"yi qug"eqwtugu"qp"cxgtci g"2684"wpku" j ki j gt"qp"yi g"hktuv"s wgurkqp"kp"Vcdng"6"cpf "2682"wpkxu"j ki j gt"qp"yi g"ugeqpf "s wgurkqp"kp"Vcdng"6"\*qp" c"uecng"yi cv"twpu"htqo "3"vq"7."y j gtg"3"ku"o cr r gf "vq"õuntqpi n{"f kuci tggö"cpf "7"ku"o cr r gf "vq" õuntqpi n{"ci tggö+0

Y j cvgxgt''y g''gzr rcpcvkqp'hqt''y g''f khhgtgpegu'kp'tgur qpugu'dgw ggp''y g''Ugpkqt''Uwtxg{ ''s wguvkqpu'' cpf ''y g'S ''s wguvkqpu.''y g''tgeqo o gpf ''y cv'kpuvtwevqtu''nqm'cv'y g''cpuy gtu''r tqxkf gf ''d{ ''uwvf gpvu''vq'' y gug''s wguvkqpu''kp''y gkt''qy p''eqwtugu.''y j kej ''cnuq''kpenvf g'tgxgcnkpi ''qr gp''yzv'tgur qpugu'

 $\label{eq:continuity} Xctlcvlqp"cetquu"eqwtugu"cnıq"tgxgcnı"wughwilphqto~cvlqp0Qpg"uqwteg"qh"xctlcvlqp"vj~cv'cf~xgtugn("~rtgf~levgf"j~ki~j~gt'tcvlpi~u"ku"eqwtug"ukl~g0Ur~gelkhecm(."vj~g"tgi~tguulqp"ku"twp"cv'vj~g"eqwtug"igxgn'y~kj~"~m*gptqmo~gpv+"qp"vj~g"tki~j~vj~cpf~/ukf~g="vj~g"guvko~cvgf~tgi~tguulqp"eqghhlekgpvu"hqt"ip*gptqmo~gpv+"ctg"~20865"qp"vj~g"hktuv's~wguvkqp"cpf~'20856"qp"vj~g"ugeqpf~s~wguvkqp0Vvj~gug"eqghhlekgpvu"ko~r~n("vj~cv'c"/"~r~gtegpv'kpetgcug"kp"eqwtug"ukl~g"ku"cuuqekcvgf~"cr~r~tqzko~cvgn(+"y~kj~"c"tgf~wevkqp"kp"vj~g"o~gcp"7/r~qkpv~pwo~gtlecn'ueqtg"d{"/20865*\(\frac{\lambda_{\text{\cutu_{100}}}}{\lambda_{\text{\cutu_{100}}}}\)+wpku"qp"vj~g"hktuv's~wguvkqp"cpf~"/20856*\(\frac{\lambda_{\text{\cutu_{100}}}}{\lambda_{\text{\cutu_{100}}}}\)+wpku"qp"vj~g"ugeqpf~0$ 

Qpeg'y g'eqpvtqmgf 'hqt'eqwtug'uk g. 'y g'hqwpf 'vj cv'c'eqwtugøu'cecf go ke'f qo ckp'\*klg0'Ctvu'cpf "
J wo cpkkgu. "Uekgpegu. "UGCU. "Uqekcn'Uekgpegu. "cu'y gm'cu'Gzr qu. 'I gpgtcn'Gf weckqp. "cpf 'Hktuv'"
[ gct 'Ugo kpctu+'vgpf gf 'pqv'vq'r tgf kev'xctkckqp"qp"vj gug'pgy 'S 's wgurkqpuô y kyj "qpg'gzegr klqp0'
Eqwtugu'kp'UGCU'vgpf gf 'vq'ueqtg'my gt'qp'vj g'hktuv's wgurkqp. "d{ "2082"qh'c'r qkpv'qp''cxgtci g''
\*uvcktrkecm( 'uki pkhkecpv'y kyj "r"? '20247+0

#### 60'Encut qqo 'Pqto u'cpf 'Tgeqo o gpf cylqpu

Dcugf "qp" i g"s wcrksc kxg"cpf "s wcp ksc kxg" kphqto c kqp" y g"i c y gtgf. " y g"eqo o kwgg" tgeqo o gpf u" y g"hqmy kpi "c" r tqcej gu. "kp ytxgp kqpu. "cpf "gzr ge w kqpu "õhqt "gpi gpf gtkpi "c" kktcp v "gctpkpi " gpxktqpo gp või" Y g"uwi i guv' y c v' y g"HCU" F gcp" kcumt gngxcp v "gzr gt u "cpf "gp vkkgu" c v' J ctxctf. " uwej " cu' y g"Dqm'Egp vgt. "y ky "ko r ngo gp vkpi " y gug" qdl ge vkxgu" cu' cr r tqr t kcvg0 V j g"r tqr qucnu" dgnqy "ctg" kpvgpf gf " 'q "hcektkcvg" qr gp" f kueqwtug "kp" qwt "encuutqqo u "y gug" r tkpekr ngu" r tqxkf g" eqp vgz v "hqt" y g" kpvgtr t gvc kqp" qh" cp "kput we vqt øu" qdrki c vkqpu' y ky "t gur ge v 'q" J ctxctf øu "P qp/F kuet ko kpc vkqp. "C p vk/Dwn kpi. " ("Q y gt "Rtqhguukqpcn" Eqpf we v "Rqn kgu0

#### Encuat qqo 'Rt kpekr ngu

- "" Uwwf gpv'encunt qqo 'igct plipi < Uwwf gpwu'uj qwrf "eqo g''\q''encuu'cpf "crrtqcej "\y glit" cuuki po gpwu'y kij "ewtkqukv{ "cpf "qr gppguu." tgcf { "\q' igctp "htqo "cpf "rkuvgp"\q' qy gtu." kpenwf kpi "r ggtu." cpf "\q' uj ctg"\y gkt "qy p'kf gcu'kp" wtp0 kpuvt wevqtu'uj qwrf "eqpxg{ "\y g" r tkpekr ng "\y cv'cp" gxqrxkpi "r qkpv'qh'xkgy "ku'pqv'c'y gcnpguu." dw'kpuvgcf "c"o ctngt "qh" kpvgngewcn'i tqy y 00 qtg"i gpgtcm{ ."\y g"htqpvkgtu"qh'npqy ngf i g"cpf "uej qrctuj kr "ej cpi g." tgs wktkpi "vgcej gtu"cpf "uwwf gpwu"vq"dg"y krrkpi "vq"cf cr v'y gkt"kpvgtr tgvcvkqpu"cpf "ej cpi g" y gkt"qy p"o kpf u0Cp"cdkrkv{ "\q' gpi ci g"y kj "kpvgngewcn'eqpvgpv."cpcn{ ugu."cpf "xkgy r qkpwu" y cv'ej cmgpi g"qpgøu"r tguwr r qukxkqpu"qt "dgrkghu"hqto u"c"etkkecn'r ctv'qh'c "uweeguuhwrleqnrgi g" gf wecvkqp0
- "" Uwf gpv'cuguo gpv<'Uwf gpv'ur ggej ."cuuki po gpvu."cpf "gzco u'ecp"dg"gxcnwcvgf "d{" kpuntwevqtu"cu'hcewcm{ "kpeqttgev'qt"r qqtn{ "cti wgf ."hqt"gzco r rgô dw'c'uwf gpvu'urcwu'kp" c"eqwtug. "kpenwf kpi "ij gkt"i tcf gu. 'uj qwrf "pqv'dg"chhgevgf "d{ "ij gkt"r qrkskecn'qt "gij kecn'r qkpv' qh'xkgy 0

- "I Hewn ('encunt qqo 'in ggej < Eqwtug'j gcf u'ctg'htgg'\q'r tgugpv'c'ewttkewn o 'cpf 'r qkpul'qh' xkgy .'kpenwf kpi 'vj gkt'qy p'xkgy u.'vj cvtghrgev'vj g'kpvgngewcn'qdlgevkxgu'qh'vj gkt'uwdlgev' cpf 'f kuekr nkpg0Hewn ('j cxg'vj g'tgur qpukdkrk ('vq'etgcvg'c'encuntqqo 'gpxktqpo gpv'kp'' y j kej 'uwwf gpvu'o c ('r ctvkekr cvg'kp'c'vj qwi j vhwn'ecpf kf .'cpf 'htgg'gzej cpi g'qh'kf gcu0' Heewn ('vj qwrf 'gpeqwtci g'uwwf gpvu'vq'gpi ci g'y kej 'f kxgtug'xkgy r qkpvu'kp'encun'f kuewnukqp'' cpf 'ugrgev'eqwtug'o cvgtkcnu'cpf 'vqr keu'vj cv'cenpqy rgf i g'vj g'tcpi g'qh'r gtur gevkxgu'r tgugpv'' kp'vj g'hkgrf 0Heewn ('vj qwrf 'pgxgt'ugrgev'uwwf gpvu'vq'gptqm'kp'eqwtugu'ur gekhecm ('vq'' gzenwf g'cewcn'qt''r gtegkxgf 'xkgy r qkpvu0)
- "' Hcewn{ 'gzvt co wt critr ggej <C 'hcewn{ 'o go dgt 'y km'pqv'dg 'f gpkgf 'vj g 'cdktkv{ 'vq 'r tqr qug ' cpf 'vgcej 'eqwtugu'qp'vj g 'dcuku'qh'vj g 'eqpvgpv'qh'vj g'qr kpkqpu'cpf 'xkgy r qkpvu'vj g { "gzr tguu" qwukf g'vj g 'ercuutqqo 0 Eqwtug'j gcf u'j cxg'vj g'tki j v'vq'uj ctg'vj gkt'r gtuqpcn'xkgy u'kpukf g'' cpf 'qwukf g'qh'J ctxctf '\*g0 0'qp'uqekcn'o gf kc. 'kp'cp'kpvgtxkgy . 'kp'c'r wdnecvkqp+: 'eqpukuvgpv' y kvj 'vj g'HCUzu'i wctcpvggu'qh'htggf qo ''qh'ur ggej ''cpf ''cecf go ke'htggf qo ''cpf ''uvdlgev'vq'' J ctxctf zu'P qp/F kuetko kpcvkqp'cpf 'Cpvk/Dwn{kpi 'Rqnke{0
- Eqplif gpvic list Kp"qtf gt "hqt" uwif gpwu" vq" liggri'y cv" y g { "ecp"gzr rqt g"cpf" qr gpn("gzr t guu" f gxgrqr kpi "qt "eqpvt qxgtukcn'kf gcu" kp" ercuu. "uwif gpv'ercuut qqo "ur ggej "uj qwrf" 'pqv'dg" vt gcvgf" cu"r wdrke0'V j g"eqphkf gpvic rkx { "r qrke { "hqt "eqwtugu" uj qwrf" 'dg" y cv" y j krg" uwif gpwu" o c { "\*cpf" kpf ggf" 'ctg" gpeqwtci gf" vq + "f knewnu" ercuut qqo "eqpxgtuc vkqpu" qwukf g"qh" ercuu. "yj g { "o c { "pqv" cwtkdwg" kf gcu" vq" c" ur gekhe" uwwf gpv'y kyj qww'yj cv'uwif gpwu" eqpugpv0'V j ku" ku" c" xgtukqp" qh" y g" õEj cyj co "J qwug" Twrgö" hqt "uwif gpwu" cmkpi "c" ercuu0'Uwej "c" ht co gy qtm'ku" kp" r rceg" cv" J ctxctf "Mgppgf { "Uej qqn" cpf" J ctxctf" Ncy "Uej qqn" cpf" y cu" t geqo o gpf gf" hqt "cf qr vkqp" cetquu" J ctxctf "d { "yj g" Qr gp" kps wkt { "cpf" Eqpuvt we vkxg" F kcrqi wg" Y qtmkpi "I tqwr 0' kpuvt we vqtu" ctg" dqwpf" "d { "hgf gtcn'hcy" "HGTRC +"pqv' vq" f knequg" qwukf g" J ctxctf" r gtuqpcm { "kf gpwhhcdrg" kphqto cvkqp" cdqww'uwif gpw0'Xkqrcvkqpu" qh" ercuu" eqphkf gpvkcnkv{ "r qrkekgu" uj qwrf" dg" tgxkgy gf "d { "vj g" J ctxctf" Eqrugi g" J qpqt" Eqwpekn" y j kej "uj qwrf" cnuq" f gvgto kpg" ucpevkqpu0
- "' Uqekcrib gf kc<kp''nggr kpi ''y kyj ''y gug''eqphkf gpvkcrkx{ ''r tkpekr ngu. ''pq''o go dgt''qhi'c''eqwtugô '' kpuvtwevqtu''qt''uwxf gpvwô uj qwrf ''r quv''\*qt''uj ctg''kphqto cvkqp''y cv''gpcdngu''qyj gtu''vq''r quv+'' r gtuqpcm{ ''kf gpvkhkcdng''uwxf gpv''encuutqqo ''uvcvgo gpvu''qp''uqekcn'o gf kc''qt''qyj gt''qp/nkpg'' r ncvhqto u0'Vj g''qpn{ ''gzegr vkqpu''uj qwrf ''dg''y j gp''c''uwxf gpv''r tqxkf gu''y tkwgp''eqpugpv0' Xkqncvkqpu''qhi'uqekcn'o gf kc''r qrkekgu''uj qwrf ''dg''tgxkgy gf ''d{ ''y g''J ctxctf ''Eqmgi g''J qpqt'' Eqwpekn'y j kej ''uj qwrf ''cnuq''f gvgto kpg''ucpevkqpu0

#### Egpvgt kpi 'Cecf go keu

- "" Uwwf gpv'c wgpf cpeg< kp/encuu'c wgpf cpeg' kp "ngewt gu. "uge klqpu. "ugo kpctu. "ncdu. "cpf "uwwf kqu" 
  \*\*Ipenwf kpi "cttkxkpi "qp" klo g"cpf "unc { kpi "wpvkn' y g"gpf "qh"encun+"uj qwnf "dg" y g"pqto. "y kj "
  y g"gzegr klqp" qpn { "qh" y qug"tctg"encungu' hqt "y j kej "cu { pej tqpqwu"gptqmo gpv'ku"cmqy gf 0'
  T gcuqpcdng "ceeqo o qf cvkqpu"qh" c'f qewo gpvgf "f kucdkrk { 'y km'dg" o cf g0 kpuntwevqtu"ctg"
  wpf gt "pq"qdrki cvkqp" kq" tqxkf g"o cng/wr "qr r qt wpkkkgu" hqt "uwwf gpwu" y j q"o kuu"encuu"f wg" kq"
  gz vtcewttkewrt "eqo o ko gpvu" kpenwf kpi "lqd" kpvgtxkgy u"cpf "vtcxgn' kq" cyj ngvke" gxgpvu+0
- Cunguno gpv: F gr ctvo gpvu. 'f kxkukqpu. 'qt 'vj g 'gpvktg' HCU'uj qwf 'f kuewuu'cpf 'eqpukf gt''
  tgi wrctk kpi 'cr r tqcej gu'vq'i tcf kpi 'uecrgu'cpf 'y qtmqcf 0'Vj ku'y qwf 'kpetgcug''
  vtcpur ctgpe{. 'nko kv'r gtegkxgf 'kpegpvkxgu'vq'i tcf g'i gpgtqwun( 'vq'i gpgtcvg'j ki j 'gptqmo gpwu'
  qt'S 'ueqtgu. 'cpf 'tgf weg'vj g'gz vgpv'vq'y j kej 'i tcf kpi 'cpf 'y qtmqcf 'kphrwgpeg'uwf gpvuø'
  eqwtug'ej qkegu0
- "' S 'eqwt ug'gxcnwc wlqp<'Gpf/qh'ugo guvgt 'uwt xg{u'uj qwrf 'cum's wguvlqpu'cdqw'c 'eqwt ugøu' qxgtcm'enlo cvg'y kj 'tgur gev'\q'kpvgmgewcn'qr gppguu'cpf 'uj qwrf 'cum'cdqw'j qy 'gcej '' o go dgt 'qh'yj g'kpuvt wevlqpcn'\gco .'lpenwf kpi '\gcej kpi 'hgmqy u.'eqpvt kdwgu'\q'c'enlo cvg'qh'' qr gp'kps wkt {0\times Uvej 's wguvlqpu'y gtg'cf f gf '\q'yj g'S 'I wkf g'hqt'ur t kpi 'cpf 'hcm'42460+
- "' Ugct ej 'vgej pami kgu<'kp"qtf gt 'vq'hcekkcvg"cwj gpvke"eqwtug"ej qkegu"cpf 'vtwg"gzr mtcvkap" qh'vj g'ewttkewno. 'vj g'HCU'T gi kuntct'uj qwrf "etgcvg"pgy "ugctej "cpf "ej cvdqv'vqanı'vj cv' gpcdrg"uwf gpvu'vq'hkpf "eqwtugu."eqwtug'u{mcdk "cpf "eqwtug"gxcnwcvkapu"o qtg"gcukn{0
- "" Encunt qqo 'lpht cunt wewnt g<Vj g'HCU'uj qwrf 'lpxguv't guqwtegu'y j gt g'pgeguuct { ''vq''uwr r qt v'' dcuke''encunt qqo 'lpht cunt wewnt g0Vj ku''o c { 'lpenwf g'lpet gcukpi ''qt''wr f cwlpi ''cxckrcdrg'' encunt qqo u'vq''ceeqo o qf cvg''eqwtugu''qhi'xct { kpi ''uk| gu''cv'dwu { ''wo gu''qhi'f c { .''wr f cwlpi '' encunt qqo ''vgej pqrqi { .''cpf ''uwr r qt wlpi ''qr wo cn'ugewqp''uk| gu0
- Fi kichf gxkeg't qrke{ < Uwf gpvu'o ww'pgxgt 'wug'egmir j qpgu'kp'encuu. "gzegr v'y j gp" cwj qtk gf "d{ "ij g'kpurtwevqt "hqt"r gf ci qi kecnir wtr qugu. "qt "hqt "tgcuqpcdrg"ceeqo o qf crkqpu" qhic'f qewo gpvgf "f kucdktx{ 0'Uwf gpvu'uj qwf "cnuq"gzr gev'pqv'vq"wug"qvj gt "kpvgtpgv'gpcdrgf" f gxkegu'kp'encuu'wprguu"gzr rhekrn{ "r gto kwgf "d{ "vj g'kpurtwevqt."qt."ci ckp. "hqt "tgcuqpcdrg" ceeqo o qf crkqpu"qhic'f qewo gpvgf "f kucdktx{ 0'Kpurtwevqtu'uj qwrf "r tqxkf g"c'encuutqqo " vgej pqmi { "r qrke{ "qp"vj gkt"u{mcdwu."cpf 'uwf gpvu'uj qwrf 'tgcf "cpf 'hqmy 'kv0'Vj g'Dqmi' Egpvgt "uj qwrf "r tqxkf g"vgo r ncvgu'vj cv'kpurtwevqtu"ecp"cf cr v'vq'vj gkt "pggf u0

#### Rt gr ct kpi 'Kpunt wevqt u'cpf 'Uvwf gpwi

"'' **Qpdqctf kpi 'pgy 'kwf gpwk'**P gy 'luwf gpwl'kp''dqvj "J ctxctf 'Eqmgi g''cpf ''y g''I UCU'uj qwf "
tgegkxg''tckpkpi ''cdqwl'yj g''r tcevkegu''yj cv''ecp''r tgr ctg''yj go ''vq''yj tkxg''kpvgmgewcm( "cv''
J ctxctf 0'Uwej ''tckpkpi ''uj qwrf ''ygcej ''pgy ''uwf gpwl'umkmu''uwej ''cu''j qy ''vq''o cmg''cwj gpvke''

- eqwtug'ugrgevkqpu."y j cv'vq"gzr gev'litqo "encuutqqo "f kuewuukqp."cpf "y j gtg"vq"likpf "ng{ " ngctpkpi "tguqwtegu0Kl'uj qwrf "cnuq"kpenwf g"wpf gtuvcpf kpi "J ctxctf øu"pqto u"cdqwv'cecf go ke" gzr gevcvkqpu'uwej "cu'encuutqqo "cwgpf cpeg."cecf go ke"j qpguv{."cpf "eqplif gpvkcrkx{ 0
- "'' Qpdqctf lpi 'pgy 'lpust wewqt u<'Vj g'HCU'uj qwf 'r tqxkf g''tckplpi 'hqt'pgy '\gcej kpi 'hgmqy u'' cpf 'qvj gt'pgy 'lpust wewqtu.'lpenwf kpi 'c'o qf wrg'qp''yj g'ko r qt wcpeg'qh'letgcvkpi 'c'ercuutqqo "gpxktqpo gpv'yj cv'gpeqwtci gu''uwf gpwi'vq''gzr tguu''yj gkt ''qr kpkqpu''qr gpn{ 'cpf 'vq'cum' erctkh{kpi 's wguskqpu0Cf f kkqpcm{. 'kpust wevqtu''uj qwrf 'wpf gtuvcpf ''yj cv'yj g{ ''o c{ ''uj ctg''yj gkt'' qy p''qr kpkqpu''kp''yj g'ercuutqqo .''dw''yj g{ ''uj qwrf ''cmg''ectg''vq''gpuwtg''yj cv'yj g{ ''f q''pqv'' gzr rhekn{ ''qt''ko r rhekn{ ''tgs wktg''uwf gpwi'kp''yj gkt''ercuugu''vq''uj ctg''yj qug''xkgy r qkpwi'kp''qtf gt'' vq''uweeggf 0'Uwf gpwi'uj qwrf ''tgeqi pkl g''yj cv'cp''kpust wevqt''o c{ ''j cxg''c''r qrkskecn'xkgy r qkpv.'' dw''uj qwrf ''pqv'hggn'qdrki gf ''qt''kpegpvkxkl gf ''vq''cf qr v'ks0
- Crki pkpi 'gzr gew kapu'dgwy ggp 'eqwt ug'j gcf 'epf 'eqwt ug'i wchi 'Eqwt ug'j gcf u'ctg" tgur apuklag 'hat 'axgtuggkpi "eqwt ug'r ankekgu. "cuuguuo gpv. "guuapp"r reppkpi. "epf "qvj gt" r gf ci qi kech'eqpvgpv. "cpf 'hat "eqo o wpkeckpi "vj gkt "gzr gevckapu"y kij "vj gkt "kpuvt wekapch" uvchi "vVhuIVCuIECu+"qp "c"tgi wret "dcuku. "g0 0'y ggmn(0'Uko kretn(. "kv'ku'vj g'tgur apuklakkv{ "qh" kpuvt wekapch'uvchi 'vq'iqmqy "vj g"gzr gevckapu"cpf "i wkf cpeg'ugv'd{ "eqwt ug'j gcf u'y kij "tgur gev'vq "cmi'r gf ci qi kech'eqpvgpv. "kpenwf kpi "vqr keu"cpf "o cvgtkenu"eqxgt gf. "rgct pkpi "qdlgevkxgu. "cpf "cuuguuo gpv'qh'iuwf gpv'y qtm0
- Crki pkpi 'gzr gew wkqpu'dgwy ggp 'kpunt wewqt u'cpf 'tuwf gpwx'Y g"tgeqo o gpf ''yi cv' kpuntwewqtu'f gxqw"emuu'ko g"cv'ij g"unctv'qhi'ij g"ugo gungt "cpf kqt'ij tqwi j qww'ij g'ugo gungt "' vq"f kuewuu'ij gkt 'r gf ci qi kecn'gzr gewchqpu. "i qcnu. "cpf "r tcenkegu'iy kij "unwf gpwu0'Vj gug"o c{" kpenwf g<"gzr mckpkpi "qpgøu"cr r tqcej "vq"ecntpi "qp"unwf gpwu'kp"emuu="f guetkdkpi "qpgøu" cr r tqcej "vq"o cpci kpi "kp/emuu"f kuci tggo gpv="qt"etgchkpi "c"uj ctgf "emuutqqo "ci tggo gpv" hqt"iy g'ugo gungt "kp"eqmcdqtchqp"y kij "unwf gpwu0'Vj g'Dqnn'Egpvgt"uj qwnf "dg"c"tguqwteg'hqt" kpuntwewqtu'uggnkpi "y c{u'vq"ctnkewmcy"cpf "uj ctg"iy gkt "gzr gevchqpu0
- "' Hquygt lpi 'gpi ci gf 'f kuewullqp' vj t qwi j qw' vj g'ewt t lewnwo <'Vj g'HCU' uj qwf 'lpegpvkxl g'' eqwtugu'cpf "eqwtug" o qf wrgu' vj cv'r tqo qvg' tghrgevkxg' vj kpmkpi "cpf "eqput wevkxg' f kuewullqp" cetquu' f khigtgpegu0'Uwf gpvu' uj qwrf "dg" gpeqwtci gf "vq" rgctpô cpf 'licewr ("vq" vgcejô j qy "vq" vj kpm't ki qtqwun ("cpf "etkkecm ("cdqw' gxkl gpeg="j qy "vq" cuuguu "cpf "f kurlpi wkuj "dgw ggp" cuugt vlqpu. "kpvgtr tgvcvlqpu. "cpf "cuuwo r vlqpu="cpf "j qy "vq" rkuvgp" cpf "tgur qpf "vq" eqo r gvkpi " r gtur gevkxgu' kp'i qqf 'lickij 0
- "' Wilpi 'tj g'DqmEgpvgt <'Vj g'DqmEgpvgt'uj qwrf 'dg'c'tguqwteg'hqt'ko r ngo gpvkpi 'o cp{'qhi' yi g'tgeqo o gpf cvkqpu'qwrkpgf 'j gtg0'Vj ku'uj qwrf 'kpenvf g'j grr kpi 'vq'qp/dqctf 'pgy "kpuvtwevqtu="qhhgtkpi 'i wlf cpeg'hqt'kpuvtwevqtu'uggmkpi 'y c{u'vq'ctvkewrcvg'cpf'uj ctg'vj gkt" gzr gevcvkqpu'y kyj 'uwwf gpvu="cpf'r tqxkf kpi 'vgo r ncvgu'hqt"eqwtug/ur gekhke'r qnkekgu'cdqwv'yj g' wug'qh'f ki kcn'f gxkegu. 'i gpgtcvkxg'CK'gve00'Vj g'Dqm'Egpvgt'uj qwrf 'cnuq'r tqxkf g'vtckpkpi "cpf'uwr qtv'hqt'kpuvtwevqtu'kp'etgcvkpi 'cp"gpxktqpo gpv'qh'qr gp'kps wkt { 'kp'yj g'encuutqqo 0

#### Rt qr qugf 'Vgz y'hqt ''yj g''J ct xctf 'Eqngi g''J cpf dqqn<

C"J ctxctf 'Eqngi g"gf weckqp"kı'f ghkpgf "d{ "vj g'r wtuvkv'qh'npqy ngf i g0'Vj g'encuutqqo "hqto u'vj g'egpvgt"qh'c"J ctxctf 'Eqngi g"gf weckqp."cpf 'uwwf gpvu'ctg"gzr gevgf 'vq'r tkqtkkl g" vj gkt 'eqwtugy qtm0

Cecf go ke "gzegmgpeg" tgs wkt gu'uwf gpwi 'vq 'r ctvlekr cvg 'lp 'c 'vj qwi j vhwn 'ecpf kf . "cpf 'htgg" gzej cpi g"qh'lkf gcu0C 'uweeguuhwi ecuutqqo "f gr gpf u"qp 'uwf gpvi 'vwgpf cpeg. "cwgpvkxgpguu." cpf "cevlxxg" lpvgmgewcn 'gpi ci go gpv0 'Uwf gpvu 'vj qwf "crrtqcej "ngctplpi "y kyj "ewtkqukv{." lpvgmgewcn 'qr gppguu." tgur gev'hqt "pgy "kf gcu'cpf 'hqt "qvj gt "r gqr ngøu" gtur gevkxgu0 Uwf gpvu" uj qwf "gzr gev'tgi wctn{ 'vq "gpeqwpvgt "gxkf gpeg. "cpcn{ uku. "kpvgtr tgvcvkqpu." cpf "qr lpkqpu'vj cv' ej cmgpi g"vj gkt "r qkpv'qh'xkgy 0 Uwf gpv'ur ggej . "cuuki po gpvu. "cpf "gzco u"ecp" 'dg "gxcnwcvgf" d{ 'kpuvtwevqtu" cu'hcewcm{ 'kpeqttgev'qt "r qqtn{ "cti wgf . "hqt "gzco r ngô dw'c "uwf gpvu'uvcwu" lp "c "eqwtug. "kpenwf kpi "vj gkt "i tcf gu. "y km'pqv'dg "chhgevgf" 'd{ "vj gkt "r qnkvlecn'qt "gvj kecn'r qkpv' qh'xkgy 0

Cu'c'f ghcwnx''pq'o go dgt''qh'c'eqwtugô kpuntwevqtu''qt''uwwf gpwiô uj qwnf ''r quv'qp''uqekcn'' o gf kc''\*qt''uj ctg'llphqto cwlqp''y cv'gpcdrgu''qyj gtu''vq''r quv+''kf gpwlhkcdrg''uwwf gpv'ercuuntqqo "uvcvgo gpwu'y ksj qww'y tkwgp''eqpugpv0Nkngy kug. ''ercuu''r ctwlekr cpvu''uj qwnf ''cuuwo g''yj cv.'' y j krg''yj g{ "o c{ "f kuewuu''ercuuntqqo "eqpxgtucwlqpu''qwulkf g''qh''ercuu. "yj g{ "o c{ "pqv'cwtkdwg" kf gcu''vq''c''ur gekhle''uwwf gpvy'y ksj qww'yj cv'uwwf gpvyu'y tkwgp''eqpugpv0Eqphlxf gpwlcnkv{ "r qnkekgu'' f q''pqv'qxgttkf g''J ctxctf øu''<u>P qp/F kuetko kpcwlqp.''Cpwl/Dwm{ kpi.</u>''( ''Qyj gt''Rtqhguulqpcn'' Eqpf wev'Rqnkekgu0

#### Gzrncpcvqt{'Pqvg<

Xkqrc·kqpu'qh'uqekcn'o gf kc''cpf ''eqwtug''eqphkf gpvkcnkx{ ''r qnkekgu'y km'dg''f ktgevgf ''vq''y g'' Qhhleg''qh''Cecf go ke''Kpvgi tkx{ ''cpf ''Uwxf gpv'Eqpf wev.''y j kej ''cewi'cu''c''engctkpi j qwug''hqt'' xkqrc·kqpu''qh''Eqnrgi g''r qnkekgu0

#### Rt qr qugf "vgzv'fqt" vj g"Hcewn ("I cpf dqqm<

 $\label{thm:locality$ 

Hoewn ("cniq" cxg" y g" tgur qpuklkik ("vq" etgovg" c" ercuutqqo "gpxktqpo gpv" kp" y j kej "uwf gpuu" o c ("r ctvkekr cvg" kp" c" y qwi j vhwn "eopf kf ."cpf "htgg" gzej cpi g" qh" kgcu0 Hoewn ("uj qwf" gpeqwtoi g" uwf gpwu" q" gpi ci g" y kyj "f kxgtug" xkgy r qkpwu" kp" ercuu" f kuewukqp" cpf "ugrgev" eqwtug" o cvgtkoni" cpf "vqr keu" y cv' cempqy rgf i g" y g" tcpi g" qh" r gtur gevkxgu" r tgugpv" kp" y g" kkgrf 0 Hoewn ("uj qwrf" pgxgt" ugrgev uwf gpwu" q" gptqm" kp" eqwtugu ur gekhecm ("vq" gzenwf g" cewori'qt" r gtegkxgf "xkgy r qkpw0 Uwf gpv'ur ggej ."cuuki po gpwu" cpf "gzoo u" eop" dg" gxonwcvgf" d ("kput we vqtu" cu'hoewcm ("kpeqttgev'qt" r qqtn ("cti wgf ."hqt" gzoo r rgô dw' c" uwf gp yu'u cwu kp" c" eqwtug. "kpenwf kpi "y gkt" i tcf gu. "y km' pqv' dg" chhgevgf "d ("yj gkt" r qrkkecn'qt" gyj kecn'r qkpv' qh'xkgy 0

Cu'c'f ghcww.'pq"o go dgt 'qh'c'eqwtugô kpurtwevqtu'qt 'uwwf gpwô uj qwrf 'r quv'qp"uqekcn' o gf kc'\*qt''uj ctg'kphqto cwqp''yj cv'gpcdrgu'qvj gtu''vq'r quv+'kf gpwkhcdrg''uwwf gpv'encuutqqo "ucvgo gpwi'y kyj qww'y tkwgp'eqpugpv\0'Nkngy kug. "encuu''r ctwkekr cpwi'uj qwrf "cuuwo g''yj cv." y j krg''yj g{ "o c{ "f kuewuu'encuutqqo "eqpxgtucwqpu'qwukf g'qh'encuu.''yj g{ "o c{ "pqv'cwtkdwg" kf gcu''vq''c''ur gekhe''uwwf gpv'y kyj qww'yj cv'uwwf gpvøu'y tkwgp''eqpugpv\0

Vj gug"r tkpekr ngu"r tqxkf g"i wkf cpeg"hqt"vj g"cr r nlecvkqp"qhiJ ctxctf øu<u>"P qp/F kvetko kpcvkqp."</u>" <u>Cpvk/Dwm(kpi."</u>( 'Qvj gt"Rtqhguukqpcn'Eqpf wev'Rqnkekgu0

#### Crrgpf kz'C<Wpf gtitcf wcvg'Uwtxg{u

- 30' Ugpkqt''Uwtxg{
- "' 4245<I tcf wcvlpi "Ugpkqtu"\*P qx. "O ctej . "O c{"("Y cmgtu+: "Vqvcn"P?3; 3: . "Tgur qpf gf"P?3923.

  Tgur qpug"Tcvg<:: (9)'
- 4246 < T tcf wcvkpi "Ugpkqtu'\*P qx. 'O ctej .'O c $\{$ "( "Y cmgtu+: "Vqvcn'P ?3: : 3.'T gur qpf gf 'P ?38: 4. T gur qpug'T cvg<br/> : ; 06'

S wguwlqp"Vgzv	Uwtxg{" [gct	P	Uxtqpin{ Fkucitgg	Fkuci tgg	Uqogyjcv' Fkucitgg	Uqo gy j cv Ci tgg	"Ci tgg	Utqpi n(" Ci tgg
Kliggrilitgg'\q'gzrtguu'r gtuqpcriliggripi u'cpf	4246	3889	32'	36'	37'	4: '	46'	;'
dgrkghu'cdqw'eqpvtqxgtukcri'vqr keu	4245	38; 2	8'	32'	34'	48'	53'	37'
Kliggrleqo hqtvcdrg"gzrtguukpi "qrrqukpi "xkgy u	4246	3884	:'	35'	39'	49'	47'	32'
qp"eqpvtqxgtukcri'vqrkeu"kP"O["EQWTUGU	4245	38: 8	9'	35'	3;'	48'	46'	34'
Khggn'eqo hqtvdng"gzrtguulpi "qrrqulpi "xlgy u" qp"eqpvtqxgtulcn'\qrkeu"RP"O[" TGURFGP VKCN"EQO O WPKV[	4246	3888	;'	34'	39'	49'	48'	32'
Kqpnf "rkng" 'q"gpi ci g"UQEKCNN["'y kj " kpf kxkf wcm'y j q"uj ctg"r qrkskecri'qt "uqekcri' xkgy r qkpun"uko krct" 'q"o kpg0	4246	3884	:'	43'	42'	47'	3; '	9'
Ky qwf "cwgpf "c"vcmid{"C"  EQP VTQXGTUICN"URGCMGT"Y J QUG"  XIGY RQIP V"IUF IHHGTGP V"VJ CP "O IP G"  qp"c"qr le"'j cvlu"ko r qt vcpv'q"o g0	4246	387;	6'	9'	34'	45'	55'	43'
Kjcxg"gzrtguugf"qrrqukpi"xkgyu"qp	4246	387;	5'	7'	33'	4; '	59'	37'
eqpvtqxgtulcri'qr leu"Y J GP "KHGNV"KV"Y CU' KO RQTVCP V"VQ"F Q"UQ	4245	38: 9	5'	;'	35'	53'	52'	35'

Uqwteg<'HCU'Kpurkwwkqpcn'Tgugctej.'Jctxctf'Wpkxgtukv{

#### 

S wgwlqp"Vgzv"	P "		Ky qwrf "dg"uqo gy j cv" eqo hqtvcdrg"i kxkpi "o {"t xkgy u0"	Ky qwrf "dg nqogyjcv"tgnwevcpv ikxlopi "o{"xlegyu0	Ky qwf "dg"xgt {" tgrwevcpv"i kxkpi " o {"xkgy u0
Vj kpnicdqwif kuewuukpi "c"eqpvtqxgtukcn kuuwg"qwukf g"qhi'yj g"encuutqqo ."uwej "cu'kp f kpkpi "qt "tgukf gpvkcn'ur cegu'qt "cv'c J ctxctf "i cyj gtkpi "qr gp"vq"cm" eqo o wpkv{ "o go dgtu"*kpenwf kpi "tcewuv{ cpf "uvchhood qy "eqo hqtvcdng"qt "tgnwevcpv y qwf "{qwhggnicdqww'ur gcmkpi "wr "cpf i kxkpi "fqwt"xkgy uA	3833"	38' ",	66' "	49'	35'
Vj kpn'cdqw'f kuewukpi "c'eqpvtqxgtuken kuwg'kp''yj g'ercuutqqo "cv'J ctxctf 0J qy eqo hqtvcdrg''qt'tgnwevpv'y qwrf "{qwhggn' cdqw'ur gcnkpi 'wr 'cpf 'i kxkpi "{qwt xkgy uA	3832	" 33' ."	5:' "	57'	38'

[ qw'lpf lec vgf "{qw'y gtg'uqo gy j cv'qt'xgt{'tgnwevcpv'q"gzrtguu''{qwt'xlgy u'qp"c'eqpvtqxgtulcriluuwg0'Kt'{qw y gtg''q'ur gcm'wr "cpf 'i kxg"{qwt'xlgy u'qp"c'eqpvtqxgtulcriluuwg. 'y qwf "{qw'dg'eqpegtpgf 'vj cv'cp{'qh'vj g'' hqmyy lpi 'y qwrf 'j crrgpA''qw'qh'uwf gpw'tgurqpf lpi 'uqo gy j cv'tgnwevcpvlxgt{'tgnwevcpv+	Ugpkqtu'%P-?;38+
Qyi gt 'uwuf gpuu'y qwrf ''etkakek g''o { ''xkgy u''cu''qhfigpukxg0	8; '
Qý gt 'uwf gpul'y qwf 'o cng'etkkecnieqo o gpul'cdqwlo g'y ký 'qý gt'r gqr ng'chigty ctf 0	94'
C'r tqhguuqt "qt "qyj gt "wpkxgtukx{ "qhhleken'y qwrf "uc { "o { "xkgy u'ctg"y tqpi 0	48'
C'r tqliguuqt "qt "qvj gt "wpkxgtuki{ "qlihlekcn"y qwrf "etkikel‡ g"o { "xkgy u"cu"qlihgpukxg0	52'
C'r tqhguuqt"qt"qvj gt"wpkxgtuk{ "qhhkekcn'y qwrf "i kxg"o g"c"nqy gt "i tcf g"qt"qvj gty kug"f co ci g"o { "cecf go ke" tgeqtf "dgecwug"qh'o { "xkgy u0	57'
Uqo gqpg"y qwrf 'r quv'etkkecn'eqo o gpw'cdqw'o { "xkgy u'qp"uqekcn'o gf kc0	67'
Uqo gqpg"y qwf "hkrg"c"eqo r rekpv"eneko kpi "o {"xkgy u"xkqrevgf "c"eco r wu"j ctcuuo gpv"qt "cpvkf kuetko kpcvkqp" r qrke{"qt"pqto 0	45'
Ky qwrf "ecwug"qyj gtu"r u{ej qrqi kecrij cto 0	38'
Qyj gt "eqpegtpu"qh"eqpugs wgpeguA	9'

Uqwteg<HCU'Kpurkwwkqpcn'Tgugctej .'J ctxctf 'Wpkxgtukx{

- 40' O f [ gct"Uwtxg{u.'Cecf go le"[ gct"4245/46<
- T gulf gpvlcn'Nhig'uwtxg{'\*Uqrj qo qtgu.'Lwplqtu.'Ugplqtu+.''Vqvcn'P?77: ; .'T gur qpf gf 'P?577; .'' T gur qpug'T c vg<85 $\mathfrak G$ '
  - ~ÁTgur qpug'tcvgu'd{ 'Encuu<
    - Álqrj qo qtgu<8806'
    - Á Lwpkqtu<'8409'
    - Á Ugpkqtu<'8404'
- "" Cf xkukpi 'P gwy qtm'uwtxg{ '"Hktuv'[ gctu+: "VqvcriP ?386: .'T gur qpf gf 'P ?3426.'T gur qpug'T cvg< 9508'

S "Vgzv	[ <b>K</b> U	P	Uvtqpin{ Fkucitgg	F kuci tgg	Unkijvn( Fkucitgg	Unkijvn{' Citgg	Ci tgg	Uxtqpi n(" Ci tgg
_	Η[	3343	7'	32'	38'	4; '	48'	35'
	Uq	; 64	:'	;'	3:'	49'	45'	37'
Kłegeniego liqticedreg "gzrtguulpi "qrrqulpi "xkgy u"qp eqpytqxgtuleni qrkeu" lip" o { "tgukf gpyleniego o wpky{ _	Lt	32: 4	33'	33'	38'	47'	42'	39'
	Ut	; 72	33'	35'	3: '	45'	39'	3: '
	Cm	62; 7	;'	33'	39'	48'	44'	38'
	ΗĮ	334:	8'	;'	36'	4: '	4; '	36'
_	Uq	; 67	:'	;'	37'	48'	47'	39'
Khegnihigg"q "gzrtguu"r gtuqpenhegnipi u"epf "dgnighu = edqwv"eqpvtqxgtulicn"\qrleu = -	Lt	32: 9	32'	32'	35'	46'	45'	42'
	Ut	; 76	32'	33'	36'	48'	42'	3; '
	.Cm	6336	:'	32'	36'	48'	47'	3: '
	НĮ	333:	7'	33'	37'	52'	48'	35'
-	Uq	; 56	9'	35'	38'	48'	46'	37'
Kj cxg"gzrtguugf "qrrqukpi "xkgy u"qp"eqpvtqxgtukcn = qrkeu"y j gp"Khgn/k/y cu'lo rqtvcpv\q"f q"uq =	<u>L</u> t	328:	;'	36'	37'	48'	3; '	38'
and the day of general representation of the property of the section of th	Ut	; 54	;'	39'	36'	46'	3; '	39'
_	Cm	6274	:'	36'	37'	49'	44'	37'
	ΗĮ	333:	36'	53'	3;'	3: '	33'	9'
· K'qpn("hkmg"\q"gpi ci g"\uqekcm("y ksj "kpf kxkf wcm"y j q_	Uq	; 5;	35'	45'	42'	43'	35'	32'
uj ctg'r qrkkecn'qt'uqekcn'xkgy r qkpvu'uko krct'vq	Lt	3299	36'	42'	42'	46'	32'	34'
o kpg0	Ut	; 63	35'	45'	3;'	43'	36'	32'
_	Сm	6297	35'	46'	42'	43'	34'	32'
	ΗĮ	333;	4'	6'	;'	47'	56'	47'
.  Ky qwrf "cwgpf "c"\cmid { "c"eqp\tqxgtu\cri\ur gengt	Uq	; 5;	5'	7'	;'	52'	4; '	46'
y j qug''xkgy r qkpv'ku''f khigtgpv'y cp''o kpg''qp''c''\qr ke	Lt	329:	5'	8'	34'	4: '	48'	48'
yj cv'ku'ko rqtvcpv'vq'o g	Ut	; 5;	6'	32'	32'	47'	48'	47'
	Cm	6297	5'	8'	32'	49'	4; '	47'
Kp'i gpgtcn''Kecp''eqo hqtvcdn(''ceegr v'y j gp''qvj gtu tgcej 'f khigtgpv'eqpenwukqpu''qp''c''r qrkkecm(''qt uqekcm(''ej cti gf 'kuwg''y cv'Kf q''pqv'ci tgg''y kj 0	НĮ	3344	3'	4'	5'	39'	67'	54'

Uqwteg<'HCU'Kpurkwwkqpcn'Tgugctej.'Jctxctf'Wpkxgtukv(

#### 50' S 'uwtxg{<"Wpf gti tcf wcvg"eqwtug"t guwnu. "Ur tlpi "4246

- ~ÁQxgtcm'tgur qpug'tcvg<': 303'
- ~ÁF kutkdwkqp"qh"eqwtug/rgxgn"o gcpu"\*wpf gti tcf wcvg"eqwtugu+"d{ "gptqmo gpv

Kp'ij ku'eqwtug.'o quo'lowf gp ut'hloogp 'c wgp vkxgu' 'y kj 'c p qr gp 'o kpf 'c pf 'c 'y kukpi p guu'iq'ej c pi g'ij gkt'r qkp v'qh'Kp'ij ku'eqwtug'\*kpenwf kpi 'lugevkqp u+ 'Khggdeqo hqt vc drg'' xkgy 'c u'ij g{ 'lgct p'o qt g'c dqwv'ij g'iqr ke 0' gz r t guukpi 'o { 'xkgy u'qp 'eqp vt qxgt u'c n'iqr ke u'o

	P	Ogcp	ŨF	Okp0	Ocz0	$\boldsymbol{P}^{\cdot}$	Ogcp	ÜF	Okp0	Ocz0
Qxgtcm	33; 5	6082	2056	5	7	33: ;	6072	2062	407	7
>32	5; 8	6095	2059	5	7	5; 5	6086	2068	407	7
32"/">47	772	6082	2053	5	7	76;	6069	2059	4089	7
47''/'>72	347	606:	2047	50 9	60,5	347	6059	204;	507	7
72"/">322	: 8	605;	2047	509:	60 7	: 8	6053	2045	5089	60
322-	58	6046	2012	50 8	6086	58	603;	2089	50,3	607

Uqwteg<"HCU"Kpurkwwkqpcn'Tgugctej."Jctxctf"Wpkxgtukx{

60' EUEE 'Wpf gti tcf wcvg'uwtxg{."Uwo o gt"4246
~Ákpxkgf 'P?8; 42.'Tgur qpf gf 'P?3: 4.'Tgur qpug'Tcvg<'408'

	P	Uxtqpin( Fkucitgg	F kuci tgg	Pgkajgt'Citgg pqt'Fkucitgg	"Ci tgg	Uxtqpi n(" Ci tgg	pk
Kp''y g''eqwtugu''K'j cxg''\cngp."o quv'qy gt''uwf gpvu''nkuvgp''cpf " r ctvkekr cvg''y kyj "'cp''qr gp''o kpf "'cpf "c''y kntpi pguu''vq''ej cpi g'' y gkt''r qkpv'qh''xkgy "'cu''y g{ ''ngctp''o qtg''cdqw''y g''\qr ke0	3: 3	8'	3: '	37'	68'	34'	4'
Kp''y g''eqwtugu''Kj cxg''\cngp.''Kliggn'eqo hqt'\cdng''cumpi " enctklif kpi "s wgukqpu''f wtkpi "encuu'y j gp''Kco "j cxkpi " f khkewn{"hqmqy kpi "y g''o cygtkcn'dgkpi '\cwi j \0	3:4	6'	35'	34'	73'	42'	2'
Kp''y g'eqwtugu'Kj cxg''vcngp."Kliggn'eqo hqtvcdrg''gzrtguukpi " o { "xkgy u''qp''eqpvtqxgtukcn'\qrkeu0	3: 4	38'	48'	42'	4: '	;'	3'
Kp'vj g'eqwtugu'Kj cxg'vcngp."Kliggn'o { 'eqpvtklwklqpu'vq'encuu'' f knewnukqpu'ctg'xcnwgf 'd{ 'vj g'vgcej kpi 'uvchi 'kpenwf kpi '' kpuvtwevqtu'cpf 'vgcej kpi 'lignqy ulcuukuvcpvu()	3: 4	4'	6'	32'	72'	56'	2'
Kp''y g''eqwtugu'Kj cxg''\cngp."Kliggn'o {''eqpvtklwklqpu'\q''ercuu'' f kuewuukqpu''ctg''xcnwgf ''d{''qvj gt''uwf gpw''kp''y g''ercuu0	3:4	5'	9'	56'	67'	34'	3'
Vj g"eqwtugu"Kj cxg"\cmgp"kpeqtrqtc\g"f kxgtug"r gtur ge\kxgu" cpf "cmqy "hqt"gzrmtc\kqp"qh"f khigtgp\'xkgy rqkp\u0	3:4	9'	37'	37'	64'	3: '	4'

#### Crrgpf kz'D<I tcf wcvg'Uwtxg{u

30' I UCU'Rj F 'Gzk'/Uwtxg{.'Cecf go ke'[ gct''4245/46

"Á tcf wckpi 'Rj F 'Tgekr kgpw'\*Pqx.'Octej .'Oc{'( "Y cmgtu+.'Tgur qpug'Tcvg<'9; '

S wgurlqp''Vgz v''	P "		qwnf "dg"uqogyjcv" eqohqtvcdng"ikxkpi"i	Kyqwnf'dg nqogyjcv'tgnwevcpv	Ky qwf "dg"xgt { " tgwecpvi kxlpi "
		i kxkpi 'o { ''xkgy u0'	o { ''xkgy u0'	i kxkpi "o {"xkgy u0	o {"xkgy u0
Vj kpnicdqwi'f kuewukpi "c'eqpvtqxgtukcn kuwg"qwukf g"qh'iy g"ercuutqqo ."uwej "cu'kp f kpkpi "qt'tgukf gpvkcn'ur cegu'qt"cv'c'J ctxctf i cyi gtkpi "qr gp"vq"cm'eqo o wpkxf "o go dgtu" *kpenxf kpi "hcewnf "cpf "uvchh0J qy eqo hqtvcdrg"qt "tgnwevcpv'y qwrf "{qwhiggn cdqwi'ur gcmkpi "wr "cpf "i kxkpi "{qwt'xkgy uA	55: "	48' "	59' "	49'	33'
Vj kpnicdqw/f kuewukpi "c"eqpvtqxgtukcn kunwg"kp"vj g"encuutqqo "cv"J ctxctf 0J qy eqo lqtvcdrg"qt"tgnwevcpv'y qwrf "{ qwliggn cdqw/ur genkpi "wr "cpf "i kxkpi "{ qwt 'xkgy uA	562"	46' "	59' "	48'	35'

[ qwllpf lecvgf "{qwly gtg"luqo gy j cv'qt 'xgtf"tgnwevcpv'\q"gzrtguu"{qwt"xlgy u'qp"c"eqpvtqxgtulcriluuwg0'Ki'{qwl' y gtg"\q"ur gcrilwr "cpf "i kxg"{qwt"xlgy u'qp"c"eqpvtqxgtulcriluuwg."y qwf "{qwldg"eqpegtpgf "y cv'cp{"qh'y g" hqmqy kpi "y qwf "j crrgpA*qwl'qh'uwf gpvu'tgurqpf kpi "uqo gy j cv'tgnwevcpvkxgt{"tgnwevcpv+	Rj F 'Ecpf lf cvgu' *P ? 373+
Qy gt'uwf gpui'y qwf 'etkleld g'o { 'xlgy u'cu'qhfgpulxg0	76'
Qý gt 'uwf gpul'y qwf 'o cmg'etkkecn'eqo o gpul'cdqw'o g'y kj "qý gt'r gqr ng'chigty ctf 0	7: '
C'r tqhguuqt''qt''qy' gt''wpkxgtukv{ "qhhleken'y qwrf "uc{"o {"xkgy u''ctg"y tqpi 0	53'
C'r tqhguuqt'qt'qy gt'wpkxgtukv{ "qhhlekcn'y qwrf "etkslek g"o { "xkgy u"cu"qhhgpukxg0	58'
C'r tqhguuqt"qt"qy gt"wpkxgtukv{ "qhhlekcn'y qwrf "i kxg"o g"c"nqy gt"i tcf g"qt"qy gty kug"f co ci g"o { "cecf go ke" tgeqtf "dgecwug"qh'o { "xkgy u0	37'
Uqo gqpg'y qwrf 'r quv'etkkecnieqo o gpvu'cdqwv'o { "xkgy u'qp"uqekcnio gf kc0	5: '
Ugo gapg"y qwrf "hkrg"c"eqo r nckpv'encko kpi "o { "xkgy u"xkqncvgf "c"eco r wu"j ctcuuo gpv'qt"cpvkf kuetko kpcvkqp" r qrke{ "qt"pqto 0	42'
Ky qwf "ecwg"qij gtu'r u{ej qrqi lecrij cto 0	38'
Qyj gt "eqpegtpu"qh"eqpugs wgpeguA	33'

Uqwteg</hCU'Kpurkwwkqpcn'Tgugctej .''J ctxctf ''Wpkxgtukv(

- 40' S 'luxtxg{<I tcf wcyg'luwf gpvu.''Ur tkpi '4246
- "" Qxgtcm'S 'Tgur qpug'Tcvg<'75'
- "" F kutkdwkqp"qh"eqwtug/rgxgnlo gcpu'd{ "gptqmo gpv

Kp'ij ku'eqwt ug. 'b quo'lowf gp uu'fhaogp 'c wgp vkxgnf 'y koj 'c p" qrgp'b lpf'cpf'c'y hilpi pguu'lq'ej cpi g'lj glt'r qlpv'qh' Kp'lj ku'eqwtug'Apenvf lpi 'lgevlqpu+'Klggileqo lqtvcdig'' xkgy 'cu'ij g{'kgctp'b qtg'cdqwv'ij g'iqrke0 gz r t gudpi 'b {'xkgy u'qp'eqp v qxgt ukc d'\qr keu0  $\boldsymbol{P}$  $U\!\!F$ Okp0 $P^{'}$  $U\!\!F$ Ocz0OgcpOcz0OgcpOkp07 53; 205; 536 6073 206; 6085 Qxgtcm 7 373 6094 205; 5 7 368 607: 2078 4 >32 342 2057 5 7 342 2065 5 7 6082 606; 32"/">47 7 7 507 64 6067 2058 64 6062 2056 508 47"/">72 8 6027 2054 5068 604; 8 602; 204: 5079 6054 72"/">322  $p\, l\! c$ 322-

Uqwteg<"HCU"Kpurkwwkqpcn'Tgugctej."Jctxctf"Wpkxgtukx{

50' EUEE'I tcf wcvg'Uwf gpv'uwtxg{."Uwo o gt"4246
"Áfoxksgf"P?6754."Tgur qpf gf"P?389."Tgur qpug'Tcvg?508'

	P	Uxtqpin( Fkucitgg	Fkucitgg	Pgkjgt'Citg	gg" Ci tgg	Uxtqpi n{" Ci tgg	pk
Kp''y g''eqwtugu''Ky cxg''\cmgp."o quv''qyi gt''uwf gpwi'nkuvgp''cpf " r ctvkekr cvg''y kyj "cp''qr gp''o kpf "cpf "c''y kmkpi pguu''vq''ej cpi g''yi gkt'' r qkpv''qh''xkgy "cu''yi g{ 'ngctp''o qtg''cdqw''yi g''vqr ke0	388	6'	35'	35'	68'	42'	6'
Kp''y g''eqwtugu''Kj cxg''\cmgp.''Khggn'eqo hqt'\cdng''cum\pi ''enctkh(kpi ''s wgurkqpu'f wtkpi ''encut'y j gp''Kco ''j cxkpi ''f kthkewn\f ''hqmqy kpi ''y g''o cygtkcn'dgkpi ''cwi j v0	388	6'	33'	35'	69'	46'	3'
Kp''y g'eqwtugu''Ky cxg''vcmgp.''Khiggn'eqo hqtvcdng''gzrtguulipi 'o {"xkgy u'qp''eqpvtqxgtulicn''vqrkeu0	388	38'	38'	49'	49'	9'	9'
Kp''y g''eqwtugu''Ky cxg''\cmgp.''Khggri'o { ''eqpvtklwkqpu''vq''ercuu'' f kuewuukqpu''ctg''xcrwgf ''d{ ''y g'\gcej kpi ''u'nchi 'kpenwf kpi '' kpuvtwevqtu''cpf ''\gcej kpi ''hgmqy ulcuukuvcpvu0	388	4'	7'	35'	76'	47'	4'
Kp''y g''eqwtugu''K'y cxg''vcngp.''Kl'iggn'o { ''eqpvtkdwklqpu''vq''ercuu'' f kuewuuklqpu''ctg''xcnwgf ''d { ''qyi gt''uwwf gpwu''kp''yi g''ercuu0	388	4'	9'	47'	6: '	39'	3'
Vj g'eqwtugu'Kj cxg'vcmgp'kpeqtrqtcvg'f kxgtug'r gtur gevkxgu'cpf " cmqy ''hqt'gzrnqtcvkqp'qh'f khigtgpv'xkgy rqkpvu0	388	9'	33'	49'	59'	34'	8'
Kp''y g''eqwtugu''kp''y j kej ''Kj cxg''ugtxgf ''cu''c''\gcej kpi ''hgmqy ." o quv''uwf gpwi'hkngp''epf 'r ct\kekr c\g''y kj ''cp''qr gp''o kpf ''cpf ''c'' y kmkpi pguu''\q''ej cpi g''y gkt''r qkpv'qh'xkgy ''cu''y g{ ''ngctp''o qtg'' cdqw''y g''\qr ke0	323	7'	5'	33'	75'	44'	8'
Kp'\j g'eqwtugu'kp'y j kej 'Kj cxg'ugtxgf ''cu'c'\gcej kpi 'hgmqy .'o { "uwf gpw'cunlentkh{kpi ''s wgwkqpu'f wtkpi ''encuu'y j gp'\j g{ ''ctg'' j cxkpi 'f khkewn{''hqmqy kpi ''y g'o c\gtkcn'dgkpi '\cwi j \cdot 0	323	5'	9'	36'	76'	44'	2'
Kp'\j g'eqwtugu'kp'y j kej 'Kj cxg'ugtxgf 'cu'c'\gcej kpi 'hgmqy .'К' hggnleqo hqtvcdng'\gcej kpi 'eqpvtqxgtukcn\qr keu0	323	32'	3;'	39'	4: '	32'	39'

Kp"yj g"eqwtugu"kp"y j kej "Kj cxg"ugtxgf "cu"c"\gcej kpi "hgmqy ."K hggn"yj cv'kv'ku"ko rqtvcpv'\q"rtgugpv'cpf "gnlekv'f kxgtug"xkgy rqkpvu0	322"	2' "	2' "	9' "	63' "	66'	:'
Kp''y g'eqwtugu'kp'y j kej 'Kj cxg''ugtxgf ''cu'c''\gcej kpi 'hgmqy .''K							
j cxg"dggp"cungf "vq"vgcej "o cvgtlcn"vj cv"Khlpf "qdlgevlqpcdrg"cpf "32	3"	62' "	52'	6' "	33' "	5' "	35'
dgnkgxg'uj qwrf 'pqv'dg''qp''yj g'u{mcdwu0							

#### Crrgpf kz'E<Hcewn/{ 'Uwtxg{ u

Qxgtcm'eqo l'qtv'qt'tgmevcpeg''vq''gpi ci g'lsp'' eqpvtqxgtulcn'lkuwgu	P	Ky qwrf "dg"xgt{" eqo hqt vcdrg" i kxkpi "o {"xkgy u0	Ky qwrf "dg" uqo gy j cv" eqo hqtvcdrg"i kxkpi " o {"xkgy u0		Ky qwf "dg" xgt{"tgnwevcpv" i kxkpi "o {" xkgy u0
Ngcf kpi "c"encuntqqo "f knewnkqp"qp"c" eqpvtqxgtukcnknuwg	33:	3: '	58'	53'	37'
Rwtuwkpi 'tgugctej ''qp''c''eqpytqxgtukcn''qrke	323	62'	53'	45'	9'
F kuewuukpi "c"eqpvtqxgtukcrikuuvg"qwukf g"\j g" encuuvqqo	33:	38'	52'	55'	43'

[qw'lspflecvgf"{qw'y gtg"uqo gy jcv'qt"xgt{"tgmvevcpv'vq"\gcej"cdqw'c"eqpvtqxgtulcn'kuuwg01Kb"{qw'y gtg"\q" ngcf"c"fkuewuulqp"qp"c"eqpvtqxgtulcn'kuuwg."y qwrf"{qw'dg"eqpegtpgf"vjcv'cp{"qh'vjg"hqmqy lspi"y qwrf" jcrrgpA	Hcewn√('*P?77+		
Ky qwrf "tgegkxg"wpy cpygf "cwgpylqp"qwulkfg"yj g"Wpkxgtulk{."uwej "cu"qp"uqelcni'o gfkc"qt"lp"yj g"rtguu	93'		
Uqo gqpg"y qwf "hkrg"c"eqo r nckpv"yj cv"yj g"f kuewuukqp"xkqncvgf "c"eco r wu"j ctcuuo gpv"r qnke{	8; '		
C'uwf gpv'y qwf 'uc{ 'pgi cvkxg'ij kpi u'cdqw'o g''q'r ggtu'cpf 'qij gtu'cv'ij g'wpkxgtukv(	89'		
Ky qwrf "dg"etkkek gf "chigt" y g"f kuewuukqp"d { "qyj gtu"cv"yj g"Wpkxgtukv(	87'		
O { "\gcej kpi "gxcnwc\kqpu"y qwrf "uwhigt	77'		
Ky qwrf "dg"etkwlek gf "f wtkpi "y g"eqwtug"qh'y g"f kuewuukqp"d{ "c"uwf gpv	6; '		
Qvj gt "vgcej kpi "cpf lqt "eqwtug"qdlgevkxgu"y qwrf "dg"pgi cvkxgn( "chhgevgf "d{ "vj g"f kuewuukqp	69'		
Qyj gt	38'		
Vjg"fkuewuukqp"eqwrf"tguwn/kp"ru{ejqnqikecn'jcto"hqt"uwvfgpwlkp"vjg"encuutqqo	37'		

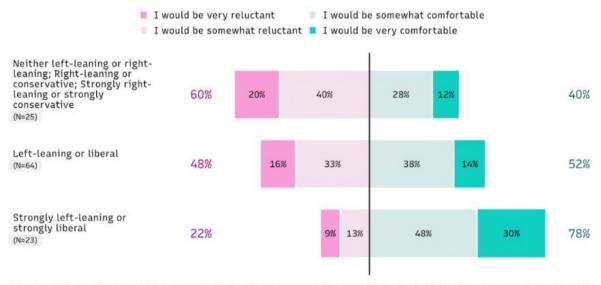
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K'y qwrf "tgegkxg"wpy cpvgf "cwgpvkqp"qwukf g"vj g"Wpkxgtukv{ ."uwej "cu"qp"uqekcn'o gf kc"qt"kp"vj g"r tguu	: 5'			
O {"tgugctej "y qwrf "dg"etklæk gf "cu"qhrgpukxg"d{"eqmgci wgu"cpf "qy gtu"cv"y g"Wpkxgtukv{	89'			
Ky qwrf 'lgqrctfk' g'rtqhguukqpcntgrokqpuj kru'ij cv'ctg'korqtvcpv'vq'o { "ectggt	75'			
Eqngci wgu''cpf 'qvj gtu''cv''y g'Wpkxgtuk\{ ''y qwrf ''uc\{ ''o \ 'tgugctej ''ku'kpeqttgev	65'			
Ky qwrf 'lgqr ctf k' g''qr r qtwpkkgu'uwej ''cu'i tcpw''cpf 'lgmqy uj kr u	65'			
Uqo gqpg'y qwf 'hkg'c'eqo r rekpv'ereko kpi ''o { ''y qtm'xkqre yef ''c'eco r wu'j ctcuuo gpv'r qrke {	59'			
Qý gt	32'			
Ky qwrf "ecwug"qyj gtu'r uf ej qrqi lecrij cto	32'			

[ qw'kpf kecvgf "{qw'y gtg'uqo gy j cv'qt'xgt { 'tgrwevcpv'vq'f knewnu'c'eqpvtqxgtukcriknnvg'y kij 'qvj gtu'kp'vj g'' ] ctxctf 'Eqo o wpkx{0Kn'{qw'y gtg'vq'f knewnu'c'eqpvtqxgtukcri'vqr ke.''y qwrf "{qw'dg'eqpegtpgf 'vj cv'cp{ 'qh'vj g'' kqmqy kpi 'y qwrf 'j cr r gpA	Hcewn{"*P ?*85+
O { "xkgy u'y qwrf "dg"etkkek gf "cu"qhhgpukxg"d { "eqmgci wgu"cpf "qvj gtu"cv"vj g"Wpkxgtukv{	89'
Ky qwrf "tgegkxg"wpy cpvgf "cwgpvkqp"qwuld g"vj g"Wpkxgtukv{."uwej "cu"qp"uqekcn'o gf kc"qt "kp"vj g"r tguu	82'
C"o cpci gt"qt"Wpkxgtukx{"qhhkekcn'y qwrf"r gpcnk  g"o g"qt"qyj gty kug"lgqr ctf k  g"o {"ectggt	6; '
Uqo gqpg'y qwrf "hkng"c"eqo r nckpv'encko kpi "o { "y qtm'xkqncvgf"c"eco r wu'j ctcuuo gpv'r qnke {	68'
Eqngci wgu'qt''qvj gtu''cv'vj g'Wpkxgtukv{ ''y qwrf ''uc{ ''o { ''xkgy u''ctg''y tqpi	54'
Qyj gt	3;'
Ky qwf 'ecwıg'qyi gtu'r u{ ej qıqıi kecıl'j cto	8'

Uqwteg < J ctxctf "Wpkxgtuky". "Ohleg "qh" yi g "Cuuqelcvg" Rtqxquv hqt "Koukwkqpcn T gugctej "cpf "Cpcn vleu

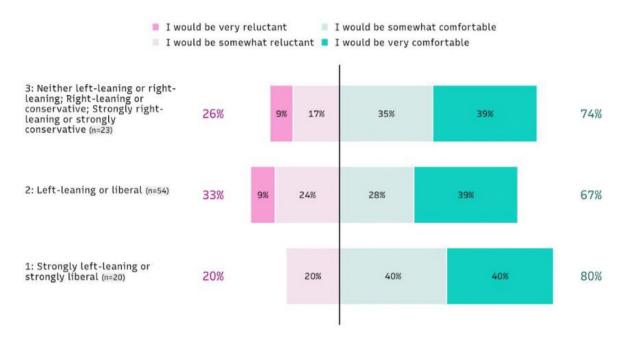
40' Fkntkdwkqp"qh"Higg"Ur ggej "Swgurkqpu"d{"RqrkkecrlChhkrlcvkqp"\*Uqwteg<"Jctxctf"Wpkxgtukv{." Qhhkeg"qh"yj g"Cuuqekcyg"Rtqxquv"hqt"KpurkwkqpcrlTgugctej "cpf "Cpcrl(vkeu+

Think about teaching a controversial issue in a class at Harvard. How comfortable or reluctant would you feel leading discussion on this topic?

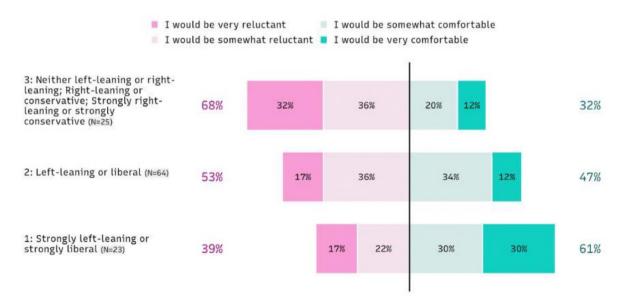


Neither left-leaning or right-leaning, Right-leaning or conservative and Strongly right-leaning or strongly conservative have been combined due to small Ns.





Think about discussing a controversial issue in the Harvard Community OUTSIDE the classroom, such as with colleagues in the workplace or at an event or location open to students, faculty, and staff. How comfortable or reluctant would you feel speaking up and giving your views on this topic?



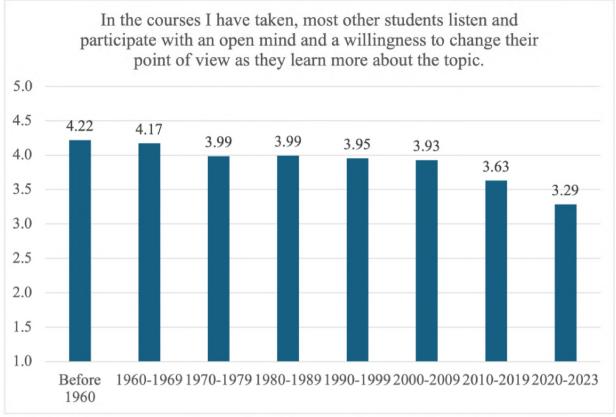
#### Crrgpf kz'F < Cnwo pkiwtxg{ u

30' J ctxctf 'Eqngi g'Cnwo pk''Uwo o gt''4246

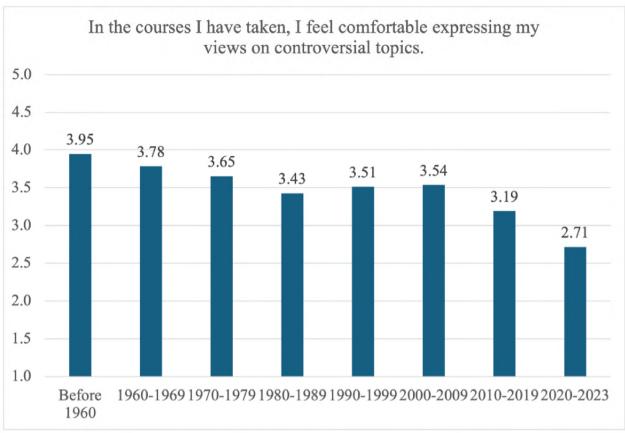
"Áfpxkgf 'P ¢95222.'Tgur qpf gf 'P ? 3742.'Tgur qpug'Tcvg? 402'

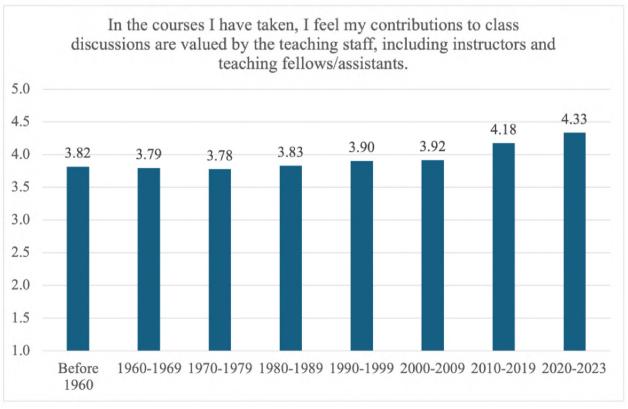
	P	Uvtqpin{ Fkucitgg	F kuci tgg	P gkij gt 'Ci tgg' pqt 'F kuci tgg	'Ci tgg	Utqpi n{" Ci tgg	pk
Kp''y g'eqwtugu''Ky cxg''cmgp."o quv'qy gt''uwf gpvu''nkugp''cpf " r ctvkekr cvg''y kyj "cp''qr gp''o kpf "cpf "c''y knhpi pguu''q''ej cpi g'' y gkt''r qkpv'qh''xkgy "cu''y g{ ''ngctp''o qtg''cdqwv''y g''vqr ke0	3742	3'	8'	36'	74'	46'	5'
Kp''y g''eqwtugu''K'j cxg''cmgp. 'Khggn'eqo hqt'cdng''cumpi " enctkh{kpi ''s wgukqpu''f wtkpi ''encuu''y j gp''K'co ''j cxkpi '' f kthkewn{ ''hqmqy kpi ''y g''o cygtkcn'dgkpi ''cwi j v0	3744	6'	38'	36'	62'	46'	3'
Kp''y g'eqwtugu''Ky cxg''vcngp.''Kliggn'eqo hqtvcdng''gzr tguukpi '' o {'xkgy u''qp''eqpvtqxgtukcn''qr keu0	3743	7'	36'	42'	59'	3: '	9'
Kp'\j g'eqwtugu'Kj cxg'\cngp.'Kliggn'o { 'eqpvtklwkqpu'\q'encuu' f kuewukqpu'ctg'\xcnwgf 'd{ '\j g'\gcej kpi 'luchh 'kpenwf kpi '' kpuvtwevqtu'cpf '\gcej kpi 'lignqy ukuukuvcpvu0	3742	4'	8'	3: '	6: '	46'	4'
Kp''y g'eqwtugu''Ky cxg''vcngp. 'Kliggn'o { 'eqpvtkdwkqpu''vq'encuu'' f kuewuukqpu''ctg''xcnwgf 'd{ 'qyi gt''uwaf gpvu''kp''y g''encuu0	3737	3'	7'	54'	69'	36'	4'
Vj g"eqwtugu"Kj cxg"\cmgp"kpeqtrqtc\g"f kxgtug"r gturge\kxgu" cpf "cmqy"hqt"gzrnqtc\kqp"qh"f khigtgp\"xkgyrqkp\u0	3739	6'	33'	44'	63'	3;'	7'

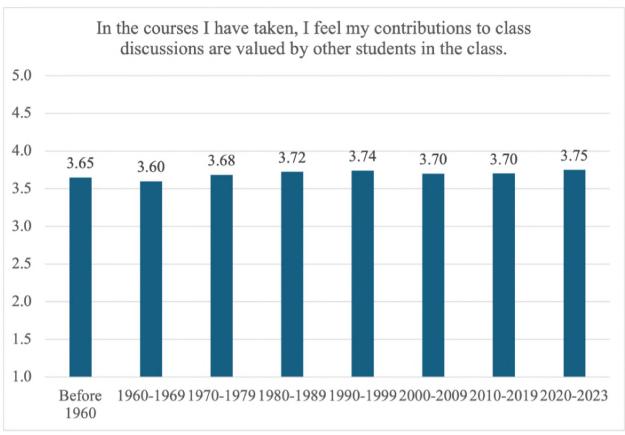
#### 40' Uwtxg{"o gcpu"d{"i tcf wc\kqp"{gct

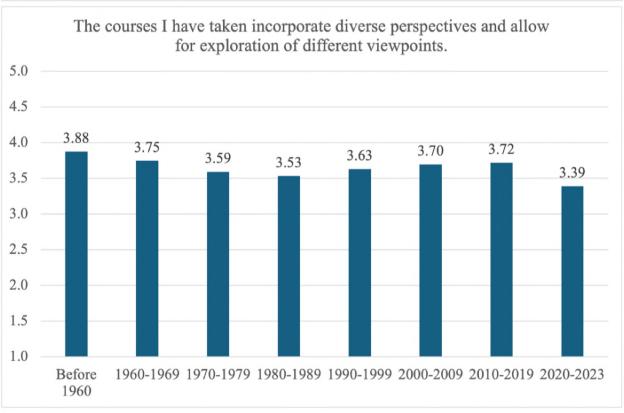












50' I UCU'Cnvo pk''Uwo o gt''4246

"Áspxkgf' | P ¢ 36222. 'Tgur qpf gf' | P ? 3: 2. 'Tgur qpug' Tcvg? 304'

	P <sup>-</sup>	Uxtqpin( Fkucitgg	F kuci tgg	Pgkj gt'Ci tgg pqt'Fkuci tgg	'Ci tgg	Utqpi n[-" Ci tgg	рk	Vqvcn
Kp''y g''eqwtugu''K'j cxg''\cngp.''o quv'qy gt''uwf gpwi'hkngp'' cpf 'r ct\kekr cvg''y kyj ''cp''qr gp''o kpf ''cpf ''c''y knkpi pguu'' vq''ej cpi g''y gkt''r qkpv''qh''xkgy ''cu''y g{ ''ngctp''o qtg'' cdqw''yj g''qr ke0	3: 2	5'	5'	: '	64'	5: '	8'	322'
Kp''y g''eqwtugu''Kj cxg''cngp.''Kliggn'eqo hqt'cdng''cuntpi " enctkh(kpi "s wgukqpu'f wtkpi "encuu'y j gp''Kco 'j cxkpi " f kthlewn( 'hqmqy kpi ''y g''o cystkon'dgkpi ''cwi j v0	3: 2	4'	37'	: '	58'	59'	5'	322'
Kp''yj g''eqwtugu''Kyj cxg''vcngp.''Kh'ggn'eqo hqtvcdrg'' gzrtguukpi ''o {''xkgy u''qp''eqpvtqxgtukcn'vqrkeu0	3: 2	9'	;'	3; '	4; '	42'	37'	322'
Kp''y g''eqwtugu''Kj cxg''\cngp.''Kliggn'o { ''eqpvtklwkqpu'\q'' encuu''f kuewuukqpu''ctg''xcnwgf ''d{ ''y g''\gcej kpi ''twchh'' kpenwf kpi ''kpurtwevqtu''cpf ''\gcej kpi ''hgmqy ukuukuvcpvu0	3: 2	2'	6'	39'	65'	53'	7'	322'
Kp'vj g'eqwtugu'Kj cxg'vcngp."Kliggn'o { 'eqpvtklwklqpu'vq'' encuu'f kuewuuklqpu'ctg''xcnwgf 'd{ 'qvj gt''uwf gpw''kp'vj g'' encuu0	3: 2	2'	4'	43'	72'	46'	5'	322'
Vj g"eqwtugu"Kj cxg"\cngp"kpeqtrqtcvg"f kxgtug" r gtur gevkxgu"cpf "cmqy "hqt"gzr mtcvkqp"qh"f khigtgpv' xkgy r qkpw0	3: 2	6'	34'	43'	56'	39'	34'	322'