Hqtv" Yqtvj "Kpfgrgpfgpv"Uejqqn"Fkuvtkev 336"Ocpwgn"Lctc"Gng o gpvct {"Uejqqn 4244/4245"Ec o rwu"K o rtqxg o gpv"Rncp

Ceeqwpvcdknkv{"Tcvkpi<"Pqv"Tcvgf<"Fgenctgf"Uvcvg"qh"Fkucuvgt



Dqctf"Crrtqxcn"Fcvg<"Lwpg"8."4244" Rwdnke"Rtgugpvcvkqp"Fcvg<"Lwpg"8."4244

Okuukqp"Uvcvg o gpv

Ocpwgn"Lctc"Okuukqp"Uvcvg o gpv

Ocpwgn"Lctc"ku"fgfkecvgf"vq"gpuwtg"vjcv"cnn"uvwfgpvu"uweeggf0

Y g" o ckpvckp" jki jn {"swcnkhkgf"uvchh. "kpvgi tcvg" c "ngctpgt/egpvgtgf" ewttkewnw o = gzg o rnkh {kpi "jqpguv {. "kpvgi tkv {. "cpf"uvtgpi vj "qh"ejctcevgt. "g o dtcekpi "cpf g o rqygtkpi "vjg" eq o o wpkv { "vq" rtqurgt0"

Xkukqp

Ocpwgn"Lctc"Xkukqp

Ocpwgn"Lctc"ku"c"uejqqn"qh"uchg."jcrr{."jgcnvj{."uejqnctuyjgtg"gxgt{"ejknf"ocvvgtu."gxgt{"fc{0"

Vjgog

Ocpwgn"Lctc"Vjgog

\$Vjgtg"ku"pq"rnceg"nkmg"Lctc#\$

Eqortgjgpukxg"Pggfu"Cuuguuogpv

Tgxkugf1Crrtqxgf<"Ugrvgodgt"52."4244

Fgoqitcrj keu

Fgoqitcrjkeu"Uwooct{

Uvwfgpv"Ngctpkpi

Uvwfgpv"Ngctpkpi"Uwooct{

 $Qp"vjg"423;"uejqqn"tgrqtv"ectf."Ocpwgn"Lctc"jcf"c"itcfg"qh"94*E+"kp"Fqockp"3"/"Uvwfgpv"Cejkgxgogpv."itcfg"qh":2*D+"kp"Fqockp"4"/"UejqqnRtqitguu."cpf"c"itcfg"9;"*E+"kp"Fqockp"5"/"Enqukpi"vjg"Icr."tguwnvkpi"kp"cp"ceeqwpvcdknkv{"tcvkpi"qh"D0""Fwg"vq"EQXKF"3;."uejqqnu"jcxg"pqvdggp"tcvgf"ukpeg"423;0"Cnn"uvwfgpvu"jcxg"tgvwtpgf"vq"kp"rgtuqp"kpuvtwevkqp"qp"ecorwu0"Cnn"uvwfgpvu"ctg"gpicigf"kp"fkuvtkev"rtqitcou"uwej"cuEqtg"7"Ngzkc"htqo"Mkpfgtictvgp"vq"7vj"itcfg0"Kv"ku"rtqlgevgf"dcugf"qp"OCR"Ocvj"fcvc"vjcv"6;'qh"uvwfgpvu"yknn"crrtqcej"qt"cdqxg"cpf"38'qh"uvwfgpvu"ctg"rtqlgevgf"vq"oggv"qt"ocuvgt"qp"UVCCT0"Kv"ku"rtqlgevgf"dcugf"qp"OCR"Tgcfkpi"fcvc"vjcv"4;'qh"uvwfgpvu"yknn"crrtqcej"qtcdqxg"cpf"47'qh"uvwfgpvu"ctg"rtqlgevgf"vq"oggv"qt"ocuvgt"qp"UVCCT0"Chvgt"uejqqn"vwvqtkpi"cpf"Ucvwtfc{"Ngctpkpi"Swguv"ctg"qhhgtgf"vquvwfgpvu"cu"cffkvkqpcn"cecfgoke"uwrrqtv"cpf"gptkejogpv0"$

Uvwfgpv"Ngctpkpi"Uvtgpivju

- 30 Hkhvj" itcfg"uvwfgpvu"qwvrgthqtogf"vjg" fkuvtkev"kp"cnn"dgpejoctm"uwdlgev"ctgcu" fwtkpi"vjg"Octej"4244"cfokpkuvtcvkqp0"
- 40 Uejqqn"ku"dcem"vq"322 ' "kp"rgtuqp"kpuvtwevkqp0"
- 50 Cffkvkqpcn"cecfgoke"uwrrqtv"ku"dgkpi"rtqxkfgf"vjtqwij"vwvqtkpi"cpf"Ucvwtfc{"Ngctpkpi"Swguv0"
- 60 M/7"uvwfgpvu"fgoqpuvtcvgf"itqyvj"ceeqtfkpi"vq"OCR"fcvc0"
- 70 RM"uvwfgpvu"fgoqpuvtcvgf"itqyvj"ceeqtfkpi"vq"ENK"fcvc0"

$Rtqdng\ o\ "Uvcvg\ o\ gpvu" \verb|Kfgpvkh{kpi"} Uvwfgpv" Ngctpkpi" Pggfu$

 $\textbf{Rtqdng} \ \textbf{o} \ "Uvcvg \ \textbf{o} \ \textbf{gpv}" \textbf{3}" * \textbf{Rtkqtkvk} \ | \ \textbf{gf} + < OCR" Tgcfkpi" fcvc" kpfkecvgu" vjgtg" ku" c"fghkekgpe \{ "kp" i tqy vj" i ckpu" hqt" o quv" i tcfg" ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" M/7 vj0" Vjg" uejqqn" eqpfkvkqpcn" i tqy vj" kpfgz" ku" pgicvkxg hqt" o quv" i tcfg "ngxgnu" hqt" o quv" i$

Uejqqn"Rtqeguugu" ("Rtqitcou

Uejqqn"Rtqeguugu" ("Rtqitcou"Uwooct{

 $Ocpwgn"Lctc)u"RNEu"hqewu"qp"xgtvkecn"ctvkewncvkqp."fgrvj"qh"mpqyngfig."cpf"cpcn{ | kpi"vjg"uvtgpivju"cpf" y gcmpguugu"cuuqekcvgf" y kvj"ec o rwu kpuvtwevkqp0""Urgekhke"RNEu"ctg"jgnf" y jgtg"vgcejgtu"eqnncdqtcvgf" y kvj"gcej"qvjgt"cdqwv" y jcv"umknnu"uvwfgpvu"ujqwnf"jcxg"wrqp"gpvgtkpi"gcejitcfg"ngxgn"hqt"xgtvkecn"ctvkewncvkqp0"Fcvc" o ggvkpiu"ctg"jgnf"chvgt"gcejfkuvtkev"cuuguu o gpv"cpf"OCR"vguvkpi" y kpfqy0""Vgcejgtu"cpcn{ | g"uvwfgpv"tguwnvu"cpf"fgxgnqr"rncpu"vq"cfftguu"uvwfgpv"pggfu0""OVUU"ku"wvknk | gfv"rtqxkfg"uvwfgpvu" y kvj"urgekhke"uwrrqtv"dcugf"qp"vjgkt"kpfkxkfwcn"pggfu0"Pgy"vgcejgt" o ggvkpiu"ctg"jgnf" o qpvjn{"vq"uwrrqtv"vgcejgtu" y kvjgzrgtkgpeg"qh"2/5"{gctu0"Vgcejgt"Kpegpvkxg"Cnnqvogpv"ku"ewttgpvn{"kp"Rjcug"3"qh"kpkvkcn"fcvc"eqnngevkqp"cv"qwt"ecorwu0"Vgejpqnqi{"wug"jcukpetgcugf"ecorwu"ykfg"d{"vgcejgtu"cpf"uvwfgpvu0"Vgcejgtu"jcxg"eqpvkpwgf"vq"wug"cpf"ockpvckpgf"xktvwcn"encuutqqou0""$

Uejqqn"Rtqeguugu" ("Rtqitcou"Uvtgpivju

- 30 Cffkvkqpcn"ngctpkpi"qrrqtvwpkvkgu"ctg"qhhgtgf"vjtqwij"Ucvwtfc{"Ngctpkpi"Swguv"cpf"chvgt"uejqqn"vwvqtkpi0"
- 40 Y ggmn {"RNE"Oggvkpiu"hqewug f"qp"urgekhke"uvtcvgikgu"vq"kortqxg"vgcejkpi."ngctpkpi"cpf"uqekcn"goqvkqpcn"ygnn"dgkpi0
- 50 322 ' "qh"cnn" Ocpwgn"Lctc"uvwfgpvu" jcxg"c"Ejtqogdqqm"vq"wvknk | g"fwtkpi "kpuvtwevkqp0"
- 60 Cvvgpfcpeg"eqookvvgg"jcu"dggp"guvcdnkujgf"cpf"oggvu"tgiwnctn{"vq"fkuewuu"cpf"cfftguu"cvvgpfcpeg"pggfu"cu"ygnn"cu"tguvqtcvkqp"cpfkpegpvkxgu0"

$Rtqdng\ o\ "Uvcvg\ o\ gpvu" Kfgpvkh \{kp\ i\ "Ue\ j\ qqn" Rtqeguugu"\ (\ "Rtq\ i\ tc\ o\ u" Pgg\ fu$

 $\textbf{Rtqdng o "Uvcvg o gpv"3"*Rtkqtkvk | gf} + < \text{Rctgpvu"eq o rnkcpeg"cpf"mpqyngfig"qh"rqnkekgu"cpf"gzrgevcvkqpu"jcu"ecwugf"qrgtcvkqp"eqpegtpu0 } \textbf{Tqqv"Ecwug} < \text{Cnvjqwij"y tkvvgp"eq o o wpkecvkqp ku"ujctgf"ykvj"hc o knkgu"yg"ncem"c"u{uvgo"hqt"vjgo"vq"cempqyngfig"vjcv"vjg{"jcxg"tgegkxgf"cpf"tgxkgygf"vjku"kphqtocvkqp0}$

Rtqdng o "Uvcvg o gpv"4"*Rtkqtkvk|gf+< Urgekcn"gfwecvkqp"tghgttcn"rtqeguu"jcu"pqv"dggp"cu"ghhkekgpv"cpf"vk o gn{"cu"rcuv"uejqqn"{gctu0 Tqqv"Ecwug< Ejcpigu"vq"tghgttcn"rtqeguu"cpf rgtuqppgn"htq o "fkhhgtgpv"fgrctv o gpvu"vjtqwij"vjg"uejqqn"{gct0

Rtkqtkv{"Rtqdng o "Uvcvg o gpvu

 $\textbf{Tqqv"Ecwug"3} < Fwg"vq"rqukvkxg"ecugu"cpf"cpf"gzrquwtgu"vq"EQX \c F3; "yjkej"tgswktg"uvwfgpvu"vq"swctcpvkpg0 \\$

Rtqdng o "Uv**cvg o gpv**" **3**" **Ctgcu** < Fg o qitcr jkeu

 $\textbf{Rtqdng}\ o\ "Uvcvg\ o\ gpv"6$<\ O\ CR"Tgcfkpi"fcvc"kpfkecvgu"vjgtg"ku"c"fghkekgpe{"kp"itqyvj"ickpu"hqt"oquv"itcfg"ngxgnu"M/7vj0"Vjg"uejqqn"eqpfkvkqpcn"itqyvj"kpfgz"ku"pgicvkxg"hqt"vjghqnnqykpi"itcfg"*/3024+."ugeqpf"itcfg"*/3024+."vjktf"itcfg"*/3077+."cpf"hkhvj"*/2029+0$

Tqqv"Ecwug"6

Tqqv"Ecwug"; < Fg o cpfu"fwg"vq"uvwfgpv"ngctpkpi"icru"cpf"uvtwiingu"hqt"uvwfgpvu"vq"cfcrv"vq"uejqqn"gpxktqp o gpv"cu" y gnn"cu"ejcpigu"kp"ngikuncvkqp0
Rtqdng o "Uvcvg o gpv"; "Ctgcu< Rgtegrvkqpu

 $\textbf{Rtqdng}\ o\ "Uvcvg\ o\ gpv"7$< OCR"Hnwgpe{"fcvc"kpfkecvgu"vjcv"88' "qh"uvwfgpvu"M/5"ctg"uvkm"kp"vjg"hqwpfcvkqpcn"umknn"cpf"jcxg"pqv"tgcejgf"cfcrvgf"qtcn"tgcfkpi."vjgtg"ku"pq"ejcpeg"kprgtegpvcig"htqo"vjg"rtgxkqwu"uejqqn"{gct0}$

Tqqv"Ecwug"7< Rtqhguukqpcn"Fgxgnqrogpv"vtckpkpi"vjcv"ycu"rtqxkfgf"vjku"uejqqn"{gct"pggfu"vq"dg"korngogpvgf"ecorwu"ykfg"ykvj"hkfgnkv{"*Pgwjcwu."Guvtgnnkvc."Nwpkvc."Guecngtc+0 Rtqdngo"Uvcvgogpv"7"Ctgcu< Uvwfgpv"Ngctpkpi

Eqortgjgpukxg"Pggfu"Cuuguu ogpv"Fcvc"Fqew ogpvcvkqp

Vjg"hqnnqykpi"fcvc"ygtg"wugf"vq"xgtkh{"vjg"eqortgjgpukxg"pggfu"cuuguuogpv"cpcn{uku<

Kortqxgogpv"Rncppkpi"Fcvc

- Fkuvtkev"iqcnu
- Ecorwu"iqenu
- $\bullet \quad J\,D5"Tgc\,fkp\,i\,"cp\,f"\,o\,cv\,j\,"\,i\,qcnu"hqt"RtgM/5$
- JD5"EEOT"iqcnu
- Rgthqtocpeg"Qdlgevkxgu"ykvj"uwoocvkxg"tgxkgy"*rtkqt"{gct+
- $\bullet \quad Ec\ o\ rwul\ Fkuvtkev"k\ o\ rtqxg\ o\ gpv"rncpu"*ewttgpv"cp\ f"rtkqt" \{\ gctu+1, constraints \ o\ rtqxg\ o\ gpv"rncpu" \}$
- Eqxkf/3; "Hcevqtu"cpflqt" y ckxgtu"hqt" Cuuguu o gpv. "Ceeqwpvcdknkv {."GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {."GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC." O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC. "O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC. "O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC. "O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC. "O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Ceeqwpvcdknkv {." GUUC. "O kuug f"Ue j qqn" Fc {u. "Gfwecvqt" Crrtckucnu. "gvell" o gpv. "Guuch full o gpv.
- Rncppkpi"cpf"fgekukqp"ocmkpi"eqookvvgg*u+"oggvkpi"fcvc
- Uvcvg"cpf"hgfgtcn"rncppkpi"tgswktgogpvu

Ceeqwpvcdknkv{"Fcvc

- Uvwfgpv"Cejkgxgogpv"Fqockp
- Uvwfgpv"Rtqitguu"Fqockp
- Enqukpi "vjg" I cru "Fqockp

Uvwfgpv"Fcvc<"Cuuguu o gpvu

- Uvcvg"cpf"hgfgtcm{"tgswktgf"cuuguu o gpv"kphqt o cvkqp
- UVCCT"ewttgpv"cpf"nqpikvwfkpcn"tguwnvu."kpenwfkpi"cnn"xgtukqpu
- UVCCT"tgngcugf"vguv"swguvkqpu
- $\bullet \ \ UVCCT"Gogtigpv"Dknkpiwcn"*GD+"rtqitguu"ogcuwtg"fcvc\\$
- $\bullet \quad Vgzcu"Gpinkuj"Ncpiwcig"Rtqhkekgpe\{"Cuuguu\,o\,gpv"U\{uvg\,o\,"*VGNRCU+"cpf"VGNRCU"Cnvgtpcvg"tguwnvu \} \} \\ \bullet \quad Vgzcu"Gpinkuj"Ncpiwcig"Rtqhkekgpe\{"Cuuguu\,o\,gpv"U\{uvg\,o\,"*VGNRCU+"cpf"VGNRCU-"cnvgtpcvg"tguwnvu \} \} \\ \bullet \quad Vgzcu"Gpinkuj"Ncpiwcig"Rtqhkekgpe\{"Cuuguu\,o\,gpv"U\{uvg\,o\,"*VGNRCU-"cnvgtpcvg"tguwnvu \} \} \\ \bullet \quad Vgzcu"Gpinkuj"Ncpiwcig"Rtqhkekgpe\{"Cuuguu\,o\,gpv"U\{uvg\,o\,"*VGNRCU-"cnvgtpcvg"tguwnvu \} \} \\ \bullet \quad Vgzcu"Gnucun Gpinkuj "Ncpiwcig"Rtqhkekgpe \{"Cuuguu\,o\,gpv"U\{uvg\,o\,"*VGNRCU-"cnvgtpcvg"tguwnvu \} \} \\ \bullet \quad Vgzcu"Gnucun Gpinkuj "Ncpiwcig"Rtqhkekgpe \{"Cuuguu\,o\,gpv"U\{uvg\,o\,"*VGNRCU-"cnvgtpcvg"tguwnvu \} \} \\ \bullet \quad Vgzcu"Gnucun Gpinkuj "Ncpiwcig"Rtqhkekgpe \{"Cuuguu\,o\,gpv"U\{uvg\,o\,"*VGNRCU-"cnvgtpcvg"tguwnvu \} \} \\ \bullet \quad Vgzcu"Gnucun Gpinkuj "Ncpiwcig" Rtqhkekgpe \{"Cuuguu Gpinkuj "Ncpiwcig" Rtqhkekgpe \{"Cuuguu Gpinkuj "Ncpiwcig" Rtqhkekgpe Rtqhkekgpe$
- $\bullet \quad \text{Uvw} fgpv \text{``hcknwtg''} cpflqt \text{''tgvgpvkqp''} tcvgu$
- Nqecn" fkc i pquvke"tgc fkp i "cuuguu o gpv" fcvc
- Nqecn"dgpej o ctm"qt"eq o o qp"cuuguu o gpvu" fcvc
- Rtgmkpfgtictvgp"Ugnh/Cuuguu o gpv"Vqqn
- Vgzcu"crrtqxgf"RtgM"/"4pf"itcfg"cuuguuogpv"fcvc
- Vgzcu"crrtqxgf"Rtgmkpfgtictvgp"cpf"Mkpfgtictvgp"cuuguuogpv"fcvc
- $\bullet \quad I\ tc\ fgu"vj\ cv"\ o\ gcuwtg"uvw\ fgpv"rgthqt\ o\ cpeg"dcug\ f"qp"vj\ g"VGMU$

Uvwfgpv"Fcvc<"Uvwfgpv" I tqwru

- Tceg"cpf"gvjpkekv{"fcvc."kpenwfkpi"pwodgt"qh"uvwfgpvu."cecfgoke"cejkgxgogpv."fkuekrnkpg."cvvgpfcpeg."cpf"tcvgu"qh"rtqitguu"dgvyggp"itqwru
- $\bullet \quad \text{Urgekcn"rtqitcou"fcvc."} \\ \text{kpenwfkpi"pwodgt"qh"uvwfgpvu."} \\ \text{cecfgoke"cejkgxgogpv."} \\ \text{fkuekrnkpg."} \\ \text{cvvgpfcpeg."} \\ \text{cpf"tcvgu"qh"rtqitguu"hqt"gcej"uvwfgpv"itqwrupgpvwyitqwrupgpv"itqwrupgpv"itqwrupgpv"itqwrupgpv"itqwrupgpv$
- $\bullet \quad Geappq\ o\ kecnm \{ \text{"fkucfxcpvcigf"} \text{"} Pqp/geappq\ o\ kecnm \{ \text{"fkucfxcpvcigf"} \text{rgthqt}\ o\ cpeg\text{"} cpf\text{"} rctvkekrcvkqp\text{"} fcvc\text{-} rctvkekrcvkqp\text{-} rctvkek$
- Ocng"1"Hg o cng"rgthqt o cpeg."rtqitguu."cpf"rctvkekrcvkqp"fcvc
- $\bullet \ \ Urgekcn"gfwecvkqplpqp/urgekcn"gfwecvkqp"rqrwncvkqp"kpenwfkpi"fkuekrnkpg."rtqitguu"cpf"rctvkekrcvkqp"fcvc$
- $\bullet \quad Okitcpvlpqp/okitcpv"rqrwncvkqp"kpenwfkpi"rgthqtocpeg."rtqitguu."fkuekrnkpg."cvvgpfcpeg"cpf"oqdknkv{"fcvcloselements of the compact of t$
- $\bullet \quad \text{$C$v/tkumlpqp/c$v/tkum"rqrwncvkqp$"kpenwfkpi"$rgthqtocpeg.$"rtqitguu.$"fkuekrnkpg.$"cvvgpfcpeg.$"cpf$"oqdknkv{$"fcvc}$ and $f'cvc$ are the summary of the summar$
- Ugevkqp"726" fcvc

- Jqognguu"fcvc
- I khvgf"cpf"vcngpvgf"fcvc
- F{ungzkc"fcvc
- Tgurqpug"vq"Kpvgtxgpvkqp"*TvK+"uvwfgpv"cejkgxgogpv"fcvc
- UVGO"cpflqt"UVGCO"fcvc

Uvwfgpv"Fcvc<"Dgjcxkqt"cpf"Qvjgt"Kpfkecvqtu

- Eqorngvkqp"tcvgu"cpflqt"itcfwcvkqp"tcvgu"fcvc
- Cvvgpfcpeg"fcvc
- Oqdknkv{"tcvg."kpenwfkpi"nqpikvwfkpcn"fcvc
- Fkuekrnkpg"tgeqtfu
- Xkqngpeg"cpflqt"xkqngpeg"rtgxgpvkqp"tgeqtfu
- Uvwfgpv"uwtxg{u"cpflqt"qvjgt"hggfdcem
- Encuu"uk|g"cxgtcigu"d{"itcfg"cpf"uwdlgev
- Uejqqn"uchgv{"fcvc

Gornq{gg"Fcvc

- Rtqhguukqpcn"ngctpkpi"eqoowpkvkgu"*RNE+"fcvc
- Uvchh"uwtxg{u"cpflqt"qvjgt"hggfdcem
- VgcejgtlUvwfgpv"Tcvkq
- Uvcvg"egtvkhkgf"cpf"jkij"swcnkv{"uvchh"fcvc
- Ecorwu"ngcfgtujkr"fcvc
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- Rtqhguukqpcn"fgxgnqrogpv"pggfu"cuuguuogpv"fcvc
- $\bullet \quad Gxcnwcvkqp*u+"qh"rtqhguukqpcn"fgxgnqrogpv"korngogpvcvkqp"cpf"korcev$
- Gswkv{"fcvc
- V/RGUU"fcvc

RctgpvlEq o o wpkv{"Fcvc

- Rctgpv"uwtxg{u"cpflqt"qvjgt"hggfdcem
- Rctgpv"gpicig o gpv"tcvg
- Eqoowpkv{"uwtxg{u"cpflqt"qvjgt"hggfdcem

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- Qticpk|cvkqpcn"uvtwevwtg"fcvc
- $\bullet \quad Rt qeguugu"cpf"rt qegfwtgu"hqt"vgcejkpi"cpf"ngctpkpi."kpenwfkpi"rtqitco"korngogpvcvkqp$
- Eqoowpkecvkqpu"fcvc
- Ecrcekv{"cpf"tguqwtegu"fcvc
- Dwfigvulgpvkvngogpvu"cpf"gzrgpfkvwtgu"fcvc
- Uvwf { "qh"dguv"rtcevkegu
- Cevkqp"tgugctej"tguwnvu

Fkuvtkev" I qcnu

Tgxkugf1Crrtqxgf<"Ugrvg o dgt"52."4244

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 $\label{eq:convex} \textbf{Gxcnwcvkqp"Fcvc"Uqwtegu} \leftarrow \text{Ekteng"Rj qpqnqikecn"Cyctgpguu"kp"Gpinkuj"cv"DQ[."OQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."OQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."OQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."OQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."OQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."OQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj"cv"DQ[."GQ[0"Ekteng"Rjqpqnqikecn"Cyctgpguu"kp"Urcpkuj kp"Urcpkuj kp"Ur$

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Tgcfkpi"Cecfg o kgu" o qfwng"rtqi tguukqp0	Pqx	Lcp	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu."EKE Fcvg*u+"1"Vk o ghtc o g< Cwiwuv"4244/Oc{"4245	"	"	"	11
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Eqmcdqtcvkpi"Fgrctvogpvu< Qhhkeg"qh"Kpuvtwevkqpcn"Kpkvkcvkxgu"cpf"Uejqqn"Uwrrqtvu				
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Pq"Rtqitguu Ceeqornkujgf EqpvkpwglOqfkh{	Fkueqp	vkpwg		

Uvchh"Tgurqpukdng"hqt"Oqpkvqtkpi< Ugg"cevkqp"uvgru0

VGC"Rtkqtkvkgu<

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Cevkqp"Uvgr"3"Fgvcknu	Tgxkg y u			
Cevkqp"Uvgr"3< Gpuwtg"cv"ngcuv"92 ' "qh"tgcfkpi "RNEu"hqewu"qp"nguuqp"kpvgtpcnk cvkqp."rncppkpi."cpf"rtcevkeg"hqt"Cornkh {"cpf"	of Hqt o cvkxg			Uw o o cvkxg
Etgcvkxg"Ewttkewnw o "vgcejgtu0	Pqx	Lcp	Oct	Lwpg
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Fcvg*u+"1"Vk o ghtc o g< Cwi wuv"4244/Oc{"4245				
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Cf o kpkuvtcvqtu."EKE."Fcvc"Cpcn{uv				
Eqmcdqtcvkpi"Fgrctvogpvu< Nkvgtce{"Fgrctvogpv."Ownvknkpiwcn"Gfwecvkqp"Fgrctvogpv."Gctn{"Ngctpkpi				
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Hwpfkpi"Uqwtegu< Uwrrnkgu"cpf"ocvgtkcnu"/"Vkvng"K"*433+"/"433/33/85;;/26G/336/52/732/222222/45H32"/" &3.722				

\$FWLRQ 6WHS 'HWDLOV	5 H Y L H Z V			
\$ FWLRQ 600WHXSUH DW OHDVW RIUHDGLQJZ3R&UW IIRRFUX\$YPRSCODLDIQDQYGL	XWWD/H LUQ&	.O3) HR Q&APKDJ	WLFHOX	P6 X P P D V
WHDFKHUV	1 R Y	- D Q	0 D U	- X Q H
,QWHQGHG \$7XHGDEHKGHEHV &,& 'DWD \$QDO\VW				
'DWHV 7LP\$PYUXDYPVH 0D\				
3 URYLGHU 3 UHVHQWHU\$G3PHLOQVLRYOQVL51DHW1StRUQVL&E,60H'DWD\$QDO\VW				
& ROODERUDWLQJ/L'WWSHDUUDWF/PH-CSWDWUWPHQW 0XOWLOLQJHXDDUOQL(Q)XLFD	WLRQ 'H	SDUWP	HQW (E	UO\ /
'HSDUWPHQW				
'HOLYHU∖ 0)HÐV∀KRVGR)DFH				
1R 3URJUHVV \$FFRPSOLVKHG &RQWLQXH 0R	GLIVLVE	FROWLO	Х Н	•

6FKRRO 3HUIRUPDQFH 2EMHFWLYH 3UREOHP 6WDWHPHQWV

6WXGHQW /HDUQLQJ

3 UREO HP 6 W DO VOS 3H FSHHOD VOS LQJ G D W D LQGLF D W H V WQKVH URHU LPVR DV VOG HJILLDF GG H QOFH) YLHQO JVU R ZWWHAS GJHBAS HLL VV FOKHRJADOW E R FO (IRO O R Z LQJ JU D G H O H Y H O V N LQG H UVJHDFURWQHGQ JU D G H I LU V W WYNL D 10G GG J JS UR DR W W R DIQOGH DLU VOZ LQJ G X H W R H G X F D W L R Q R Y H U W K H S D V W W Z R \ H D U V G X H W R W K H S D Q G H P L F Fkuvtkev" I qcn"3< Kpetgcug"vjg"rgtegpvcig"qh"5tf"itcfg"uvwfgpvu"yjq"ueqtg"cv"oggvu"itcfg"ngxgn"qt"cdqxg"qp"UVCCT"Tgcfkpi"htqo"56' "vq"69' "d{"Cwiwuv"42460"

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 $\begin{aligned} & \textbf{Gxcnwcvkqp"Fcvc"Uqwtegu} < \textbf{OCR"Hnwgpe} \{ \text{"kp"Gpinkuj"cv"DQ} [. \text{"OQ} [. \text{"GQ} [] \text{"} \\ & \textbf{OCR"Hnwgpe} \{ \text{"kp"Urcpkuj"cv"DQ} [. \text{"OQ} [. \text{"GQ} []] \\ \end{aligned}$

Uvtcvgi{)u"Gzrgevgf"Tguwnv1Korcev< Mkpfgtictvgp"/"Itcfg"5"uvwfgpvu"yjq"Oggv"qt"Gzeggf"itcfg"ngxgn"gzrgevcvkqpu"qp"mg{"OCR"Hnwgpe{"kpfkecvqtu"kp"Gpinkuj"ykm"kpetgcughtqo""83' "vq"88' "d{"Oc{"42450"}

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VGC"Rtkqtkvkgu<

Tgetwkv."uwrrqtv."tgvckp"vgcejgtu"cpf"rtkpekrcnu."Dwknf"c"hqwpfcvkqp"qh"tgcfkpi"cpf"ocvjullering the properties of the

Cevkqp"Uvgr"3"Fgvcknu		Tgx	kgyu	
Cevkqp"Uvgr"3< Gpuwtg"cv"ngcuv"92 ' "qh"tgcfkpi "RNEu"hqewu"qp"nguuqp"kpvgtpcnk cvkqp."rncppkpi."cpf"rtcevkeg"hqt"Cornkh { "cpf"	Hqt o cvkxg		Uw o o cvkxg	
Etgcvkxg"Ewttkewnwo"vgcejgtu0	Pqx	Lcp	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu	"	"	"	"
Fcvg*u+"1"Vk o ghtc o g< Cwi wuv"4244/Oc{"4245				
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Cf o kpkuvtcvqtu."EKE."Fcvc"Cpcn{uv				
Eqmcdqtcvkpi"Fgrctv o gpvu< Nkvgtce{"Fgrctv o gpv."Ownvknkpi wcn"Gfwecvkqp"Fgrctv o gpv."Gctn{"Ngctpkpi				
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Cevkqp"Uvgr"4"Fgvcknu		Tgx	kg y u	
Cevkqp"Uvgr"4< Gpuwtg"cv"ngcuv"52 ' "qh"tgcfkpi "RNEu"hqewu"qp"cpcn{ kpi "uvwfgpv" y qtm"hqt"C o rnkh{"cpf"Etgcvkxg"Ewttkewnw o		Hqt o cvkxg	Uwoocy	
vgcejgtu0	Pqx	Lcp	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu."EKE."Fcvc"Cpcn{uv	"	"	"	"
Fcvg*u+"1"Vk o ghtc o g < Cwi wuv"4244/Oc{"4245				
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Eqmcdqtcvkpi " Fgrctv o gpvu < Nkvgtce{"Fgrctv o gpv."Ownvknkpi wcn"Gfwecvkqp"Fgrctv o gpv."Gctn{"Ngctpkpi Fgrctv o gpv0				
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*Pgwjcwu."Guvtgnnkvc."Nwpkvc."Guecngtc+0

\$FWLRQ 6WHS 'HWDLOV		5 H	IYLHZV		
\$FWLRQ 6WDHSN ZHHNO\ZDONWKURXJKV DQG DHHIRSDEODFRNI LQ (RSIX5WKHRO	FIKDH 16W I	DUFRKIH PEDILI	MOOKY H	6XPPD\	WLY
3URILFLHQW LQ 77(66 'LPHQVLRQV DQG E\ 0D\	1 R Y	- D Q	0 D U	- X Q H	
,QWHQGHG \$XH的EKKOEN					1
'DWHV 7 L P\$ PK JUX DY PWH 0D\ 3 URYLGHU 3 UHVHQWHU\$ G3PHLQQ VL RX QQ U5 IDHW SR RV QV V & E, & D H'DWD \$ Q D O \V W					
& ROODERUDWLQJLWISHDUDWPHHQSWDWWPHQW 211LFH RKRQRVOW6UXSFSWRLLR		 W L D W L	YHV DQ	G 6F	
'HOLYHU\ 01H\$WKRG	, , ,				
1R 3URJUHVV \$FFRPSOLVKHG &RQWLQXH 0F	RGLIVLVI	FRQWLQ	ХН		

6WUDW(HQ,XXUH 3/&V DUH UHJXODUO\ VFKH.G; XOQO,HGGUWJRRDIRWYLYOHHOXVORHQWHEDENSHHGQ XSBIRLDXOHWGW MABY \$PSOLI\ 6\$99\$6 (VWUHOOLWD (VSHUDDOX)VD /DXQQG, WGDD V(WDFZIDWIM D3 VIHH].LD J1UHDXORDHV MW MPIRIGHHHOUDIOXGV I DOLJQHG ZLWK):,6' FXUULFXOXP

6 W U D W H J \ V ([SHFW H G Q53HHVUX.DDW/V,VPHSQD FWWK U R X J K * U D G H V WW HX G5 HJ QJ WY ZV WZMK RR QP HO 18) 3W * RU UR ZHV/J RK H 5H HGD S5 UL RQ M/ HL RQ W R E \ 0 D \

.LQGHUJDUWHQ WKURXJK *UDGH VWWKGHOUWZWZKROPHOBSW *RUURZHWKH5HHGDSCURWHWDR6SDOELVOKDZLOO LQFU (FRQRPLFDOO\'LVDGYDQWDJHG VWOXFGUHHODWWHUHWRDWV WVQRRXUERDOPDSXV ZLOO L

6 W D I I 5 H V S R Q V L E O H6 H1 RH U D OF RWOLLRWQ R VU W Q S V

7 (\$ 3 U L R U L W L H V 5 H F U X L W L H V V X S S R U W U H W D L Q W H DD VF K R Q V R D QU GH DSGULLQQJF ID SQDGO F D V% K L O G D I R X Q G 3 U R E O H P 6 W 6 W W X H D U Q L Q J

\$FWLRQ 6WHS 'HWDLOV		5 H	IYLHZV		
\$FWLRQ %W IS SEJXVW GHYHORS DQG SXEOLHFVLYNHH 13/ &L QC F 10 H G K Q LH VF D	R B XI VL UDW	3/1P FB/10HEP10/1	WU 10HWRU	60X RP P D \	WLY
DWWHQG HDFK 3/&	1 R Y	- D Q	0 D U	-XQH	
, QWHQGHG \$XKBEKBEW					1
'DWHV 7LBBHUUXDYRVH					
3 URYLGHU 3 UHVHQWHU\$G3PHLQQVLRQVU\$DHW\$RQVVL&E, &O H'DWD \$QDO\VW					
& ROODERUDWLQJI \$HSDUWPHQWV					
'HOLYHU\ 01H\$WKRG					

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pggfu"ykvj"fkuvtkev/crrtqxgf"tguqwtegu"cpf"fcvc"ykvj"RtgM/7"itcfg"vgcejgtu"wukpi"vjg"itcfwcn"tgngcug"oqfgn"cpf"cuuguuogpvcnkipgf"ykvj"HYKUF"ewttkewnwo0	Pqx	Lcp	Oct	Lwpg	
Kpvgpfgf"Cwfkgpeg< Vgcejgtu	"	"	"	"	
Fcvg*u+"1"Vk o ghtc o g< Cwi wuv"4244/Oc{"4245					
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Fgnkxgt{"Ogvjqf< PC					
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Cevkqp"Uvgr"3"Fgvcknu	Tgxkg y u

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tghkpg"vq"wug"vjg"HYKUF"Ocvj"Htcogyqtmu"hqt"vjg"hktuv"cpf"ugeqpf"ugoguvgtu"vq"fgxgnqr"etkvkecn"vjkpmkpi"cpf"rtqdngo	Pqx	Lcp	Oct	Lwpg
uqnxkpi"vjtqwij"Gwtgmc"ocvj"cpf"uekgpeg0 Kpvgpfgf"Cwfkgpeg< Vgcejgtu	"	"	"	"
Fcvg*u+"1"Vk o ght c o g< Cw i wuv"3;."4244 Fgeg o dgt"36."4244				
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Vgcejgtu."EKE."Fcvc"Cpcn{uv."Cfokpkuvtcvqtu Eqmcdqtcvkpi"Fgrctvogpvu< PC				
Fgnkxgt{"Ogvjqf< PC				
Hwpfkpi"Uqwtegu< Uwduvkvwvgu"/"Vkvng"K"*433+"/"433/33/8334/2RF/336/52/732/222222/45H32"/"&4.222."Uwrrnkgu cpf"ocvgtkcnu"/"UEG"*3;;"RKE"46+"/"3;;/33/85;;/223/336/46/535/222222/"/"&8.972."Rtqitguu"Ngctpkpi"/"UEG *3;;"RKE"46+"/"3;;/33/85;8/223/336/46/535/222222/"/"&972 Cevkqp"Uvgr"4"Fgvcknu		Tayka	Tgxkgyu	
Cevkqp"Uvgr"4< Guvcdnkuj "ngctpkpi" i qcnu"d{"Ugrvg o dgt"; ."4244"cpf"Lcpwct{"49."4245"hqt"vct i gvgf"kpuvtwevkqp"vjtqwij"vjg		Hqt o cvkxg		Uw o o cvkxg
cpcn{uku"qh"vguvkpi"fcvc."uvwfgpv"yqtm"cpf"encuutqqo"qdugtxcvkqpu0	Pqx	Lcp	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu Fcvg*u+"1"Vkoghtcog< Ugrvgodgt";."4244 Lcpwct{"49."4245	"	"	"	"
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Vgcejgtu."EKE."Fcvc"Cpcn{uv."Cfokpkuvtcvqtu				
Eqmcdqtcvkpi"Fgrctv o gpvu< PC				
Fgnkxgt{"Ogvjqf< PC				
Pq"Rtqitguu Ceeqornkujgf EqpvkpwglOqfkh{	Fkueq	ovkpwg		

Uvtcvgi {"5< Fckn {"kpuvtwevkqp"ku"rtqxkfgf"cv"vjg"fgrvj"cpf"eqorngzkv {"qh"vjg"itcfg"ngxgn"cpf"cdqxg"uvcpfctfu"kpenwfkpi"vjg"uvwfgpv"rgthqtocpeg"vcumu. encuutqqo"cevkxkvkgu."cuukipogpvu."kpvgtxgpvkqp"cpf"hqtocvkxg"cuuguuogpv"htqo"vjg"Ewttkewnwo"Htcogyqtm0

Uvtcvgi{)u"Gzrgevgf"TguwnvlKorcev<D{"Oc{"4245."kpetgcug"vjg"rgtegpvcig"qh"Mkpfgtictvgp"/"Itcfg"7"uvwfgpvu"yjq"Oggv"qt"Gzeggf"rtqlgevgf"itqyvj"qp"OCR"Itqyvj"htqo77'"vq"82'0

 $D \{ "Oc \{ "4245. "kpetgcug" vjg" rgtegpvcig" qh "Geqpq o kecm \{ "Fkucfxcpvcigf" uvwfgpvu" qp" qwt" ec o rwu" htq o "76' "vq" 7; '0 \} \}$

 $\label{thm:condition} Uvchh"Tgurqpukdng"hqt"Oqpkvqtkpi < Ugg"cevkqp"uvgru0$

VGC"Rtkqtkvkgu<

Tgetwkv."uwrrqtv."tgvckp"vgcejgtu"cpf"rtkpekrcnu."Dwknf"c"hqwpfcvkqp"qh"tgcfkpi"cpf"ocvjullender and the state of the st



VGC"Rtkqtkvkgu<

Tgetwkv."uwrrqtv."tgvckp"vgcejgtu"cpf"rtkpekrcnu."Dwknf"c"hqwpfcvkqp"qh"tgcfkpi"cpf"ocvjullering the properties of the

Rtqdng o "Uvcvg o gpvu< Uvwfgpv"Ngctpkpi 3."5

Cevkqp"Uvgr"3"Fgvcknu	Tgxkg y u			
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cflwuvkpi "kpuvtwevkqp"cu"pggfgf"hqt"uvwfgpv"uweeguu0	Pqx	Lcp	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu	"	"	"	"
Fcvg*u+"1"Vk o ghtc o g< Ugrvg o dgt"4244/Oc{"4245				
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Fcvc"Cpcn{uv				
Eqmcdqtcvkpi"Fgrctvogpvu< PC				
Fgnkxgt{"Ogvjqf< Hceg"vq"Hceg				
Hwpfkpi"Uqwtegu< Fcvc"Cpcn{uv"/"Vkvng"K"*433+"/"433/35/833;/26G/336/52/732/222222/45H32"/"&99.222				
Pq"Rtqitguu Ceeqornkujgf EqpvkpwglOqfkh{	F kueqp	vkpwg		

Uejqqn"Rgthqt o cpeg"Qdlgevkxg"3 Rtqdng o "Uvcvg o gpvu<

Uvwfgpv"Ngctpkpi

 $\textbf{Rtqdng o "Uvcvg o gpv" 3} < OCR" Tgcfkpi" fcvc"kpfkecvgu"vjgtg"ku"c"fghkekgpe { "kp" i tqyvj" i ckpu"hqt" o quv" i tcfg"ngxgnu"M/7vj0"Vjg"uejqqn"eqpfkvkqpcn" i tqyvj"kpfgz"ku"pgicvkxg"hqt"vjg hqnnqykpi" i tcfg"ngxgnu"mkpfgtictvgp"*/5057+."hktuv" i tcfg"*/3024+."ugeqpf" i tcfg"*/4048+."vjktf" i tcfg"*/3077+."cpf"hkhvj"*/2029+0 \\ \textbf{Tqqv"Ecwug} < Nquu"qh"ngctpkpi"fwg"vq"kpvgttwrvkqpu"kpgfwcvkqp"qxgt"vjg"rcuv"vyq"{gctu"fwg"vq"vjg"rcpfgoke0}$

Rtqdng o "Uvcvg o gpv"5 < OCR"Hnwgpe{"fcvc"kpfkecvgu"vjcv"88 ' "qh"uvwfgpvu"M/5"ctg"uvkm"kp"vjg"hqwpfcvkqpcn"umkm"cpf"jcxg"pqv"tgcejgf"cfcrvgf"qtcn"tgcfkpi."vjgtg"ku"pq"ejcpeg"kp rgtegpvcig"htqo"vjg"rtgxkqwu"uejqqn"{gct0 **Tqqv"Ecwug** Rtqhguukqpcn"Fgxgnqrogpv"vtckpkpi"vjcv"ycu"rtqxkfgf"vjku"uejqqn"{gct"pggfu"vq"dg"korngogpvgf"ecorwu"ykfg"ykvj"hkfgnkv{
*Pgwjcwu."Guvtgnnkvc."Nwpkvc."Guecngtc+0

Fkuvtkev" I qcn"5< Kpetgcug"vjg"rgtegpvcig"qh"uvwfgpvu"itcfwcvkpi"ykvj"c"EEOT"kpfkecvqt"htqo"65 ' "vq"6: ' "d{"Lwpg"42460"

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 $\label{lem:condition} \begin{tabular}{ll} Kpetgcug"vjg"rgtegpvcig"qh"Geqpqokecm{"Fkucfxcpvcigf"uvwfgpv"tguwnvu"qp"qwt"ecorwu"htqo"38' "vq"43' ""d{"Oc{"42450}} \end{tabular} \end{tabular}$

Gxcnwcvkqp"Fcvc"Uqwtegu< UVCCT"Ocvj

Uvtcvgi {"3< Fckn{"ocvj"kpuvtwevkqp"ku"rtqxkfgf"cv"vjg"fgrvj"cpf"eqorngzkv{"qh"vjg"itcfg"ngxgn"cpf"cdqxg"uvcpfctfu"kpenwfkpi"vjg"uvwfgpv"rgthqtocpeg"vcumu. encuutqqo"cevkxkvkgu."cuukipogpvu."hqtocvkxg"cpf"uwoocvkxg"cuuguuogpvu"htqo"vjg"Ewttkewnwo"Htcogyqtm"kp"cm"eqwtugu"hqt"cm"uvwfgpvu0

 $Geqpq\ o\ kecnn\ \{"Fkucfxcpvcigf"uvwfgpv"tguwnvu"qp"qwt"ec\ o\ rwu"y\ km"kpetgcug"htq\ o\ "38' "vq"43' ""d\ \{"Oc\ \{"424500\}, properties o'\ rwu"y\ km"kpetgcug"htq\ o\ "38' "vq"43' ""d\ \{"Oc\ \{"424500\}, properties o'\ rwu"y\ km"kpetgcug"htq\ o\ "38' "vq"43' ""d\ \{"Oc\ \{"424500\}, properties o'\ rwu"y\ km"kpetgcug"htq\ o\ "38' "vq"43' ""d\ \{"Oc\ \{"424500\}, properties o'\ rwu"y\ km"kpetgcug"htq\ o\ "38' "vq"43' ""d\ \{"Oc\ \{"424500\}, properties o'\ rwu"y\ km"kpetgcug"htq\ o\ "38' "vq"43' ""d\ \{"Oc\ \{"424500\}, properties o'\ rwu"y\ km"kpetgcug"htq\ o\ "38' "vq"43' ""d\ \{"Oc\ \{"424500\}, properties o'\ rwu"y\ km"kpetgcug"htq\ o\ "38' ""d\ "vq"43' ""d\ ""d\ "vq"44' ""d\ "v$

Uvchh"Tgurqpukdng"hqt"Oqpkvqtkpi< Ugg"cevkqp"uvgru0

VGC"Rtkqtkvkgu<

Dwknf"c"hqwpfcvkqp"qh"tgcfkpi "cpf" o cvj

Rtqdng o "Uvcvg o gpvu< Uvwfgpv"Ngctpkpi 3."5

Cevkqp"Uvgr"3"Fgvcknu	Tgxkgyu			
Cevkqp"Uvgr"3< Uwrrqtv"cpf" o qpkvqt" o cvj "tkiqt."uvwfgpv"rgthqt o cpeg"vcumu."encuutqq o "cevkxkvkgu."cuukip o gpvu."hqt o cvkxg		Uw o o cvkxg		
cpf"uw o ocvkxg"cuuguu o gpvu"htqo "vjg"Ewttkewnw o "Htcogyqtm"kp"cnn"eqwtugu"hqt"cm"uvwfgpvu0	Pqx	Lcp	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu	"	"	"	"
Fcvg*u+"1"Vk o ghtc o g< Cwi wuv"4244/Oc{"4245				
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< EKE. "Feve"Cpen{uv. "Cfokpkuvtevqtu				
Eqmcdqtcvkpi"Fgrctvogpvu< PC				
Fgnkxgt{"Ogvjqf< PC				
Pq"Rtqitguu Ceeqornkujgf EqpvkpwglOqfkh{	Fkueqp	ovkpwg		

Uvtcvgi {"4< Fgxgnqr"cpf" o ckpvckp"c"fcvc/kphqt o gf"ewnvwtg"vq"gpuwtg"gxkfgpeg/dcugf"fgekukqp/o cmkpi "vjcv"ngcfu"vq"rqukvkxg"uvwfgpv"qwveq o gu0

 $\textbf{Uvtcvgi} \textbf{\{}) \textbf{u} \textbf{"Gzrgevgf"} \textbf{Tguwnv1K o rcev} < 5/7 \textbf{"} \textbf{i tcfg"} \textbf{uvwfgpvu"} \textbf{ueqtkpi"} \textbf{cv"} \textbf{OGGVU"} \textbf{qt"} \textbf{cdqxg"} \textbf{qp"} \textbf{UVCCT"} \textbf{Ocvj"} \textbf{y km"} \textbf{kpetgcug"} \textbf{htqo} \textbf{"3: ' "vq"} \textbf{45 ' "d} \textbf{\{} \textbf{"Oc} \textbf{\{} \textbf{"42450 red) red value red v$

Uvchh"Tgurqpukdng"hqt"Oqpkvqtkpi< Ugg"cevkqp"uvgru0

VGC"Rtkqtkvkgu<

Tgetwkv."uwrrqtv."tgvckp"vgcejgtu"cpf"rtkpekrcnu."Dwknf"c"hqwpfcvkqp"qh"tgcfkpi"cpf"ocvjullering the properties of the

Rtqdng o "Uvcvg o gpvu< Uvwfgpv"Ngctpkpi 3."5

Cevkqp"Uvgr"3"Fgvcknu	Tgxkgyu			
Cevkqp"Uvgr"3< Uvtcvgikecnn {"rncp"rwtrqughwn" o cvj"fcvc" o ggvkpiu"vq"uwrrqtv"vgcejgtu"cpf" o qpkvqt"uvwfgpv"rtqitguu"cflwuvkpi		Uw o o cvkxg		
kpuvtwevkqp"cu"pggfgf"hqt"uvwfgpv"uweeguu0	Pqx	Lcp	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu Fcvg*u+"1"Vk o ghtc o g< Ugrvg o dgt"4244/Oc{"4245	II .	"	II	"
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Fcvc"Cpcn{uv				
Eqmcdqtcvkpi"Fgrctvogpvu< PC				
Fgnkxgt{"Ogvjqf< Hceg"vq"Hceg				
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Uejqqn"Rgthqt o cpeg"Qdlgevkxg"4 Rtqdng o "Uvcvg o gpvu<

Uvwfgpv"Ngctpkpi

 $\textbf{Rtqdng o "Uvcvg o gpv" 3} < OCR"Tgcfkpi" fcvc"kpfkecvgu"vjgtg"ku"c" fghkekgpe { "kp" i tqyvj" i ckpu"hqt" o quv" i tcfg"ngxgnu"M/7vj0"Vjg"uejqqn"eqpfkvkqpcn" i tqyvj"kpfgz"ku"pgicvkxg"hqt"vjg hqnnqykpi" i tcfg"ngxgnu"mkpfgtictvgp"*/5057+."hktuv" i tcfg"*/3024+."ugeqpf" i tcfg"*/4048+."vjktf" i tcfg"*/3077+."cpf"hkhvj"*/2029+0 \\ \textbf{Tqqv"Ecwug} < Nquu"qh"ngctpkpi"fwg"vq"kpvgttwrvkqpu"kpgfwecvkqp"qxgt"vjg"rcuv"vyq"{ gctu"fwg"vq"vjg"rcpfgoke0}$

Rtqdng o "Uvcvg o gpv"5 OCR"Hnwgpe{"fcvc"kpfkecvgu"vjcv"88 ' "qh"uvwfgpvu"M/5"ctg"uvknn"kp"vjg"hqwpfcvkqpcn"umknn"cpf"jcxg"pqv"tgcejgf"cfcrvgf"qtcn"tgcfkpi."vjgtg"ku"pq"ejcpeg"kprgtegpvcig"htqo"vjg"rtgxkqwu"uejqqn"{gct0 Tqqv"Ecwug< Rtqhguukqpcn"Fgxgnqrogpv"vtckpkpi"vjcv"ycu"rtqxkfgf"vjku"uejqqn"{gct"pggfu"vq"dg"korngogpvgf"ecorwu"ykfg"ykvj"hkfgnkv{
*Pgwjcwu."Guvtgnnkvc."Nwpkvc."Guecngtc+0

Fkuvtkev" I qcn"6 Gpuwtg"cnn"uvwfgpvu" jcxg"ceeguu"vq"c"uchg."uwrrqtvkxg"cpf"ewnvwtcnn{"tgurqpukxg"ngctpkpi"gpxktqpogpv0

 $\label{lem:condition} \textbf{Uejqqn"Rgthqtocpeg"Qdlgevkxg"3} < Fgetgcug" vjg" pwodgt" cpf" rgtegpvcig" qh" uvwfgpvu" yjq" jcxg" gzeguukxg" cdugpegu" *3" qt" oqtg" eqwtugu" dgnqy"; 2' "cvvgpfcpeg+htqo" 49' "vq" 44' "d{"Oc{"42450}}$

Gxcnwcvkqp"Fcvc"Uqwtegu< Hqewu."CFC

Uvtcvgi {"3< Korngogpv"qwt"ecorwu"cvvgpfcpeg"kpegpvkxg"rncp"cpf"kphqto"hcoknkgu"qh"cvvgpfcpeg"ncyu"cpf"gzrgevcvkqpu"d{"Cwiwuv"42440

Uvtcvgi {)u"Gzrgevgf"TguwnvlK o rcev< D{"Oc{"4245."yg"ykmn"rtgxgpv"cffkvkqpcn"ejtqpke"cdugpegu"cpf"fgetgcug"qwt"ewttgpv"gzeguukxg"cdugpegu"htqo"49'"vq"44'0

Uvchh"Tgurqpukdng"hqt"Oqpkvqtkpi< Cwgpfcpeg"eqookwgg."Vgcejgtu

Tguwnvu"Ftkxgp"Ceeqwpvcdknkv{

Rtqdng o "Uvcvg o gpvu< Fg o qitcrjkeu 3."4

Cevkqp"Uvgr"3"Fgvcknu	Tgxkgyu				
Cevkqp"Uvgr"3< Rctgpv" o ggvkp i "vq"gzrnckp"cvvgpfcpeg"tgswktg o gpvu"cpf"nc y u"kp"cp"ghhqtv"vq"rtgxgpv"gzeguukxg"cdugpegu"ukpeg		Uw o o cvkxg			
vjg"dgikppkpi"qh"vjg"uejqqn"{gct0	Pqx	Lcp	Oct	Lwpg	
Kpvgpfgf"Cwfkgpeg< Hc o knkgu	"	"	"	"	
Fcvg*u+"1"Vkoghtcog< Cwiwuv"4244					
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Cwgpfcpeg"Eqookvvgg."Cfokpkuvtcvqtu."Eqwpugnqt."Hcokn{ Gpicigogpv"Urgekcnkuv					
Eqmcdqtcvkpi"Fgrctvogpvu< PC					
Fgnkxgt{"Ogvjqf< Hceg"vq"Hceg					
Cevkqp"Uvgr"4"Fgvcknu	Tgxkgyu				
Cevkqp"Uvgr"4< Rtqxkfg"uvwfgpvu" y kvj "kpegpvkxgu"hqt" rgthgev"cvvgpfcpeg"gcej "ukz" y ggmu0	Hqt o cvkxg Uw o				
Kpvgpfgf"Cwfkgpeg< Hc o knkgu."Uvwfgpvu	Pqx	Lcp	Oct	Lwpg	
Fcvg*u+"1"Vkoghtcog< Cwiwuv"4244/Oc{"4245		+	+	+ **	

Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Hcokn{"GpiCfokpkuvtcvqtu Eqmcdqtcvkpi"Fgrctvogpvu< PC Fgnkxgt{"Ogvjqf< PC Hwpfkpi"Uqwtegu< Upcemu"cpf"kpegpvkxgu"hqt"uvwfgpvu"/"V433/33/86;;/26G/336/52/732/222222/45H32"/"&3.722		epeg"Eq o o kwgg.	"	"	"	"
Pq"Rtqitguu	Ceeqornkujgf	Eqpvkpwgl Oqfkh{	Fkueqp	wkpwg		

Uejqqn"Rgthqt o cpeg"Qdlgevkxg"3 Rtqdng o "Uvcvg o gpvu<

Fgoqitcrjkeu

Rtqdng o "Uvcvg o gpv"3< Uvwfgpv"cxgtcig"fckn{"cvvgpfcpeg"jcu"fgetgcugf"vq";3027 '0 Tqqv"Ecwug< Fwg"vq"rqukvkxg"ecugu"cpf"cpf"gzrquwtgu"vq"EQXKF3; "y jkej"tgswktg"uvwfgpvu"vq swctcpvkpg0

 $\textbf{Rtqdng o "Uvcvg o gpv"4} < \text{Rctgpvcn"cpf"eq o o wpkv{"kpxqnxg o gpv"jcu"fgetgcugf"cpf"rctgpvcn"kpvgtguv"kp"qrrqtvwpkvkgu"ku"nqy0 } \textbf{Tqqv"Ecwug} < \text{Nk o kvgf"xkukvqtu"qp"ec o rwu."EQXKF3;} \\ \text{rtgecwvkqpu."rctgpv"kpvgtguv0}$

Fkuvtkev" I qcn"6 Gpuwtg"cnn"uvwfgpvu"jcxg"ceeguu"vq"c"uchg."uwrrqtvkxg"cpf"ewnvwtcnn{"tgurqpukxg"ngctpkpi"gpxktqpogpv0

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Rtqdng o "Uvcvg o gpvu< Rgtegrvkqpu 3."4

Cevkqp"Uvgr"3"Fgvcknu		Tgx	kgyu	
$\textbf{Cevkqp"Uvgr"3} < Kortqxg"vjg"ngctpkpi"gpxktqpogpv"kp"cnn"ugvvkpiu"vjtqwij"gswkv{."cvvgpvkxgpguu."swcnkv{"kpuvtwevkqp"cpf"uqekcnn" open to the second of the second open to the sec$		Uw o o cvkxg		
goqvkqpcn"uwrrqtv"rtqxkfgf"d{"vtckpgf"hcewnv{"cpf"uvchh0	Pqx	Lep	Oct	Lwpg
Kpvgpfgf"Cwfkgpeg< Vgcejgtu."Uvwfgpvu Fcvg*u+"1"Vk o ghtcog< Cwiwuv"4244/Oc{"4245	п	"	"	п
Rtqxkfgt"1"Rtgugpvgt"1"Rgtuqp"Tgurqpukdng< Eqwpugnqt."Cfokpkuvtcvqtu."Vgcejgtu."EKE."Fcvc"Cpcn{uv				
Eqmcdqtcvkpi"Fgrctvogpvu< PC				
$\mathbf{Fgnkxgt}\{\mathbf{Ogvjqf}<\mathbf{PC}\}$				
Pq"Rtqitguu Ceeqornkujgf EqpvkpwglOqfkh{	Fkueqp	ovkpwg		

Uejqqn"Rgthqt o cpeg"Qdlgevkxg"4 Rtqdng o "Uvcvg o gpvu<

Rgtegrvkqpu

 $\textbf{Rtqdng o} \text{ "Uvcvg o gpv"} \textbf{3} \leftarrow \text{Dcugf"qp"uwtxg} \{ \text{"fcvc."7: '"qh"uvwfgpvu"kpfkecvgf"vjcv"vjg} \{ \text{"fq"pqv"jcxg"vjg"cdknkv} \{ \text{"vq"tgiwncvg"vjgkt"goqvkqpu"yjgp"pggfgf0 } \textbf{Tqqv"Ecwug} \leftarrow \text{Tgukfwcn"ghhgevu"qhEqxkf3; "rcpfgoke"kp"qwt"uvwfgpvu"jqog"gpxktqpogpvkpwg"vq"ecwug"vjgo"fkhhkewnvkgu0 }$

 $\textbf{Rtqdng o "Uvcvg o gpv"} \textbf{4} \lor \textbf{Uwtxg} \{ \texttt{"fcvc"kpfkecvgu"vjcv"qpn} \{ \texttt{"85' "qh"vgcejgtu"tgurqpfgf"hcxqtcdn} \{ \texttt{"kp"swguvkqpu"hqewukpi"qp"itqyvj"o kpfugv"tging to the summary of the summary of$

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VGC"Rtkqtkvkgu<

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Rtqdng o "Uvcvg o gpvu< Rgtegrvkqpu 3."4

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 $\textbf{Rtqdng o "Uvcvg o gpv"3} < \text{Dcugf"qp"uwtxg} \{ \text{"fcvc."7: '"qh"uvwfgpvu"kpfkecvgf"vjcv"vjg} \{ \text{"fq"pqv"jcxg"vjg"cdknkv} \{ \text{"vq"tgiwncvg"vjgkt"goqvkqpu"yjgp"pggfgf0 } \textbf{Tqqv"Ecwug} < \text{Tgukfwcn"ghhgevu"qhEqxkf3; "rcpfgoke"kp"qwt"uvwfgpvu"jqog"gpxktqpogpvkpwg"vq"ecwug"vjgo"fkhhkewnvkgu0 }$

Rtqdng o "Uvcvg o gpv" 4< Uwtxg { "fcvc"kpfkecvgu"vjcv"qpn { "85' qh"vgcejgtu"tgurqpfgf"hcxqtcdn { "kp"swguvkqpu"hqewukpi"qp"itqyvj" o kpfugv"tgictfkpi "vjgkt"cdknkv { "vq" o cvej "vjg"pggfu"qhuvwfgpvu"cpf"k o rng o gpv"fkhhgtgpv"vgcejkpi "uvtcvgikgu0 Tqqv"Ecwug< Fgocpfu"fwg"vq"uvwfgpv"ngctpkpi"icru"cpf"uvtwiingu"hqt"uvwfgpvu"vq"cfcrv"vq"uejqqn"gpxktqpogpv"cu"ygmn"cuejcpigu"kp"ngikuncvkqp0

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