

KOREŠPONDENČNÝ MATEMATICKÝ SEMINÁR

MATIK

ČÍSLO 6 – ROČNÍK 37

matik.strom.sk



Ahoj!

TC z~ ý-Y ç-sbeS MATIK->Wbq eqS— f~bpf qC C^S @q-PCUs qG a Wq\ zbPb> CUC ebsY@^ f zb\ zb sC Gszq>UC f ^S bç^ -Uz \> Cs ^\ eqSP-@-U -Uebx f^W%eqCz <P ^-USWf^CU <P < f-si y s- \ ~ zCS ^- b@ C^~ fb Hq\ C z @ bf Pb ^Czq @S^ Pbs szqC@C^S>V@C4~@ b4WbeC sWYCY\ S ç-sz^ W S- fCQ @ <S S, Ws- ySz- \ zC^zbq < ^Ceb@ qSb @bsz- >^G HüdCf^CfCq\ G> C^~4~@ <C s- syC4b~ ~fS@\ CF

fC@ <SMATIK-

Ako bude

Minisústredenia na školách

] SWbq <—S Wf - f: @CYf <C- WfS%Wbq q4 \ G>4%6\ Cq @SeqS4Y SS- UsWQ eS^C S Wf>Wbq ^CqC S ^- CsC S- qC f eb@b4C Wj-zWPb \ -zC -zS^WPb s szqC @C^S eqS \ b f WYi, sebYeq<Ssb WY\ Sbd- ^S~W CUC^b@ bf - @fbl@ bf \ -zC -zS^W,, \ S^S szqC@C^S“ eq{CE vCES Wf Ii _i qç^ W f f @%qks-P ^-W fS <J qç^ Wfgr szqC@C^S eqASP-U eqS \ b f eqCszbq<P WY% S <s- @x fSzc ^- Pzses=ww\ -zSWszqb\i sWwW Wz fSz%W^S^Ss~szqC@C^S- w

Tábor mladých matematikov

? qP qC SzC>- WeqC\ - >çb s ç-sb\ ebc-s Yz^ <P eq+@^S>\ → C eqC zC4- @b4q seq-f%b} fS\ G W@%o V@C s- 4~@C Wb^ - y [[>zC@ y-4bq \ Y@ <P \ -zC -zS^WfF, WY^@-q sS qC Gf~U|_i UY - Ii -~L-sz |CEJ>eqCz C eqfC fzC@%s- b<S^C C f pC Wf ç^b\ szqC@SW ŠCC^ 4qP ^- ^-U -s^CUCU- WSS qWi dbx f^W s b@W<b\ ^- eqPYsbf ^SC^~UC ^- szq^W

] C fS >çb UCy [[my-4bq \ Y@ <P \ -zC -zS^Wf UC- Wb s szqC@C^S>- f - WUC @P SC- z- WCb zb Wb Ye SF, S < S^Hq\ <S - -Us- \ bz^ ebx f^W - eqPYsbf ^SC^~UC ^- Pzses=ww\ -zSWszqb\i sWz\ \ w

Vzorové riešenia 2. série úloh letného semestra



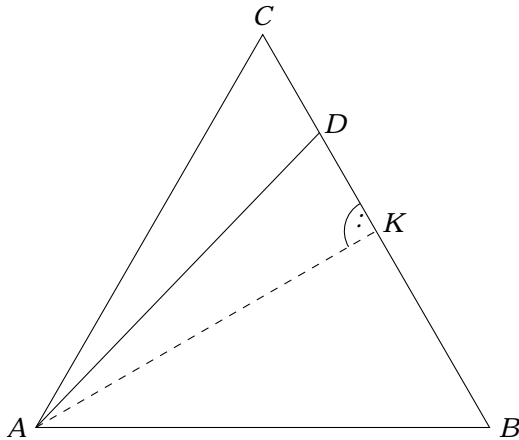
beq fbf- Y=] S- 3Cz-Wbf- X-U- [Sfbzf-
 ^- Wq USC qC C^S=] S- O-@-Wbf- rb"- rbz-Wbf-

JJ qC C^

Zadanie

O HSzbs ~WY\ Cç s Pqzb\ f zf- cC pf^bszq ^^ Pb zqU-PbY W ABCi | SCW\ ^-
 UCpb szq ^~ BC f%e- SY4b@Di a 4s- P zqU-PbY W ABD UCzqSWq-z f°ç - Wb b4s- P
 zqU-PbY W ACDi p b@SCYSP b4fb@bf UC5<\ i } qzC fC Ws szq ^%aBi

Riešenie



Šb<-@^S fSC G CzqU-PbY WABD\ -zqU-z f°ç b4s- P- Wb zqU-PbY WACDi
 yqU-PbY W%ABD- ACD\ -U sebYç^ f Wi| - b4q+W UCzb sCçW AK>Wbq-
 UC WY -^- sCçW%CD - BD - <-qfC eqC-P-@- fq-PbY\ A>Wbq UC sebYç^
 eqCb4- zqU-PbY W%ca 4s- P zqU-PbY W f%ebç z\ C- Wb v_a^ai, W v_a \ -U b4-
 zCzb zqU-PbY W%qf^- W>zC@ zqU-sb4^ b4s- P f^SW-eq fC eqCq@SCC f@ WC
 szq ^%a r zq ^- BD UC eqCb zq SWq-z @P S - Wb szq ^- CD>zC@ eYz jBDj = 3 jCDj
 y- WSC <b<-@^S fSC G Cb4fb@UC^ Pb zqU-PbY W UC b I <\ f°ç - Wb b4fb@
 @q-P Pb zqU-PbY Wi, S@ \ G C zqU-PbY W%a\ -U @fC @fbIS C pf^- Wb @P <P
 szq^ Qszq ^~ AD \ -U sebYç^ - szq ^%a AB - AC s pf^- Wb @P > YAb s
 szq ^- \ S pf^bszq ^^ Pb zqU-PbY W ABCi p b@SCYf b4fb@C eqCb f^SW-SI- eqç
 szq ^- <P CD - BDi VGy C fSC G CBD UC @P S >eYz jBDj = jCDj + 5i Š- jBDj
 \ \ C C @bs- @S Pb@^bz~ 3 jCDj>- z- W@bsz- ^C C pf^S-=-

$$3 jCDj = jCDj + 5$$

Š čbPb b@z z ^ \ U@^ Pb jCDj < b4b<P szq^ - ^-sY@^ Pb f%@CC^S @fb\ S@bsz-Q
f \ G=

$$2 jCDj = 5$$

$$jCDj = 2;5$$

; C^szq ^- BC čpf^bszq ^^ Pb zčU-PbY W ABC s- sW@-@bW%σ b 4 jCDj>
- eqčz b jABj = 4 jCDj = 4 2;5 = 10i , C Ws szq ^%σ AB U zC@ 10 < i



beq fb- Y=[- qS^ „Bvq“ ? ~@UW a sWq; - < q

{u qC C^

^- Wq USC qC C^S=yb\ - ; - 4 W

Zadanie

RfS eqf @SY sC@ S Hq4 - @ P%σ Sd%ol - 9>W @ ^- UfS < q < i d qf UHq4 C
čCqf C^U- eqf @SY < Sd- li, S Y sS Cs čS^%σS Cqeqf < P zč< P Hqf C> eqbszq C@^ < P
zč< P Hqf C^ - ebsY@^ < P zč< P Hqf C^ s- čpf^ - Ui Š- čfC sSf S Y> CsC@C < Sd q
čsY> Wbq bčsYf- ^S @ P%σ f%σ f b C S> U @ C S C^ U@^ b~ < < S C q Wbq ^Ceb- SY i
, W < Sd%eqf @SY RfS U@^ bzYf \ Hq4 - @ P%σ

Riešenie

a < ^- č\ C sS Pb^bz%HqC^ @ P%σ - q @b\ - Wb , >3> ; >?>B>G - Ki Šb < - @ ^S
fS\ G CA B C = C D E = E F Gi, S\ Cz WSC > CA = 1>eqčz eb @bs- C^
eYz B C = C D E = E F Gi yb sS<- e C\ C- Wb zCz b @fC čpf^ S C-

$$B C = C D E$$

$$C D E = E F G$$

Š eqf Učpf^ S C eq fb- f f%@CC^ \ ; g @bsz- f \ CB = D Ei 3 \ ~s 4%σ zC@ < Sd q>
Wbq- s @- sW s čS^b\ @fb- P q < ^%σ P U@^ b- Sd q^ < P čsC Y< Wbq < P - ^S U@^ b
^S U C c fz - 4bY eb- S - ^- , g yb \ C 4%σ U@^ S C D f 2 4g- Y 4b v f 2 3g] - C
< S z C^ S s S<- e C\ C @bz 4- Wb

,	3	;	?	B	G	K
c	v			{		
c	v		{			
c	D			J		
c	D		J			

Š zčz Učpf^ S C eq fb- f f%@CC^ \ Bg @bsz- ^C\ C C D = F Gi O - @ - \ Cz C@
čsY> Wbq fS\ C f%σ @čS - Wb s čS^ @fb- P q < ^%σ P @fbU- q < ^%σ P U@^ b- Sd q^ < P
čsC YS^ < P - Wb ci y- W\ SčsY\ Ss S- c | f 4 3- 2 6g- c D f 3 6- 2 9g- | J f 3 8
- 4 6g

á | G&P s çS C D = F G = 12i , eqfCU\ b ^bszsf ^- CUz-4- W4%ó \ ~sCb 4%ov>- YCz- W Pb@^bz~ \ — 3i , @q-PCU\ b ^bszS 4%ó \ ~sCb 4%oJ>çb ^SCUCeq4Y\ >- YCG- K 4%ð ~sCS 4%of ^CUW\ ebq @ | - v>çb- YC^C C 4%ð YC4b | - v~ s 3 - Bi , zqZCU- zfqZCU\ b ^bszSzb 4-@Ceb@b4^ > C @bs- @C^ Pb@^bz%o s eb- Sz i

á | G&P s çS C D = F G = 24i dqf— zqZS \ b ^bs ^Cf%Rbf~U>eqZb C ; 4%ð ~sCb 4%o@fbU^Hq^ i , @q-PCU\ b ^bszS 4%ó \ ~sCb 4%oD- G - K f ^CUW\ ebq @ J- v>- YCv UC~ 3i , zfqZCU\ b ^bszS 4%ó 4bYb v- G - K f ^CUW\ ebq @ { - D- YCDUC~ 3i

á | G&P s çS C D = F G = 18i dqf—\ b ^bs ^Cf%Rbf~UC>eqZb C ; 4%o \ ~sCb 4%o_ - G - K f ^CUW\ ebq @ { - v>- f - W{ ~ UC B - v ~ UC 3i ? q-P—\ b ^bs zC ^Cf%Rbf~UC>eqZb C ; 4%ð ~sCb 4%ov>çb ~ UC 3i zfqZ—\ b ^bs ^Cf%Rbf~UC>eqZb C ^- \ SszC ? UC J - J ^CfSA C f%o-sbAS S @%o eqfp@C^ \ UC@^b-Hq^ \ çsY\ z-W- 4%fk^SNW cDlyqZS \ b ^bs f%Rbf~UC>- zC@ ^- \ SszC ; 4%ð4bY _ - ^- \ SszCG - K f ^CUW\ ebq @ { - vi

p-YS eb@ SC^W <b<-@^S UC> CsC@C <Hq^ çsY>Wbq ebçsYbf^ f^SNB UC @CS^ UC@^b< <S Cq>Wbq eqfbçsYbf^ eb- Sz ^C4bY , ^SNB^— @fC\ b ^ çsY c D_| Jv{ - c D|_ J{vi aesYc D_| Jv{ ^SCUC@CS^ I - ^Sui aesYc D|_ J{v ^SCUC@CS^ I>- YCUC@CS^ u>zC@ f%Rbf~UC<-@^S-i db eqUC^ f CzW-P \ b ^bsz s\ C<SzSS- CRfS eqf@SY Hq4— @ P%ebsz-e^C f ebq @>f Wbq\ S@ b@çCqf^CU<Hq^c>D>|>_>J>{>vi

Komentár

, C\ S^~s zC > C- U^~eqCW - Y\ ~ \ ^b szf- b@bf<@ ^ <P qC^ >qCSB \ ^bPb < f-s z zb YP~ seqf^G S~epfC szC fS <Cq ^- YS- U- YCq^~z f^Cse sb4%qC^S > Wbq f%o @bf- YfS <<^~ Ysz>çb ^~s zC fC\ SebzCSbi | - çb sSf - WzC4- f z Q W<Pzb YP~P @f ebxbqUC> C- Ws- s^~ zC f%os- f CzW@à b ^bszS-z W~s zC @W← > C\ b ^bszS Wbq szC f%os- Ys ^- b- Uf CzW@o





beq fbfb Y-p SWS d q SWCq- T- ^b p SP^ - fsW
^- UWq USC qC C^ S =, YC^ - ; PY@ - T- W4 T- ^cL-

{ c qC C^

Zadanie

Š f q < ^C - q - s < - @ ^S s - < \ C^ SY | Dci | CqJ

, Hpb@sz ^- e s- Y ^- eCqL- \ C^ ^S Wb Wb eb sCACs@ <SP W@^ <P <CY <P q sCY, qS
q x z P b Ye CqL- \ C^ ^- @fC q- szS- W G-

á ^- W @Uk ^SP UC ^- e s- ^ <P ^S Wb Wb f- seb UC@ bg eb sCACs@ <SP W@Q
^ <P <CY <P q sCY

á ^- UC@ UC- szS UC b UC@ b q s Yb fS <- Wb ^- @q- PCU

á s qz% q sCY^ - b4b <P q- szS <P s- qf^ - Ui

? bW- zC > C^ - U C^ SC < q sCY Wbq , Hpb@sz ^- e s- Y > UC @q- Pb- \ b < ^S b- W@^ Pb
<CY Pb q sY fz ^i fS \ CPb ^- e s- - Wb s qS W@^ Pb <CY Pb q sY sb s- \ \ sC4b- g

Riešenie

pbx zqP^ ~ z \ eCqL- \ C^ ~ s \ C @bsz- Y @fC ebsz- e ^bsz Seb sCACs@ <SP W@^ <P q sCY
- WqY CsebY zfbqS e fb@C UC@ ^ ~ > eYz > C^ - q- szSA 4- @ f C W % q sY \ C^ SC
- Wb ^- U C^ SC q sYb ^- q- szS Bi , W4% 4b Yeb qCz q sCY^ - b4b <P q- szS <P qf^ - W >
eYz S b 4% Cs qCz q sCY^ - q- szSA UC \ C^ - Wb ^- B > eqzb \ ~ s 4% b q sYb fS <
eq- fC ^- q- szSA Qzbz q sYb @bqf^ - q x @CY Wbq f ^ ^SWC eqs qzb <P qf^ <P
q sCY^ - b4b <P q- szS <Pi

a @ % S C sS zC@ ^- U C^ SC q sYb ^- q- szS Ai 3G ^CPb \ - U b4C q- szS qf^ - W
eb qCz q sCY, S ^S C sS C fS C W W @ \ ~ q sY fb Wq b @ % C^ P b g eqq @S
UC@ b q sYb < @q- PCU q- szS f f @ % zb > Wbq UC ^- qf^ - W U eb < S > q sC Weqf \ ~ ^-
q- szSA eqf ^- q- szS B > W @q- P \ ~ @q- P - zyi - W- U q q S \ ~ ^- q- szSA ^- U q q S
^- q- szS B g

, 4% S C s- @bsz- Y fb @fb S S b @ \ C^ SPb q sY < q- szSA Wf q S \ ~ q sY f q- szS
B > \ ~ s \ C W^ C \ ~ eqf eb q z- eq- fC Pb @ bz - > Wbq - UC qf^ - eb q z- q sCY f W @U
< q- szS i

, S ^S C sS Ceb qCz @fb U C z S qf^ eb q z- q sCY f W @ UC- szS eqzb UC < W b f
q x @CY s qzb f q- sz qf^ eb q z- q sCY f q- szS eqC^ - sb4C^ q x @CY b \ f W @U @fb S S
q b UC f Y sz ^ C zb Sz q sYb

V G y C b @ % C^ q sYb @bqf^ - f zC^ zb q x @CY \ ~ s 4% qf^ zb \ zb q sYb > zC@ UC
@q- Pb- \ b < ^S b- f ^ - sb4W \ sC4- s \ P b g V G y C s \ C s S P b b @ % S C S - Wb ^- U C^ SC
q sYb > @b W - Y s \ C q b s \ C < P < C S

Iné riešenie

$$db@4^C - W f eqfb \quad qC C^{\wedge} eq@C \setminus C^{\wedge} - zb > Cb \zeta sYb fS < 4 - @C^{\wedge} - \zeta - szSA > W@Cs$$

$$\zeta sY \setminus C^{\wedge} S i | - U C^{\wedge} S C \zeta sY^{\wedge} - \zeta - szSA sSbe^{\circ} b@ \% \setminus G$$

$$V - @ \setminus \sim \zeta sY < \zeta - szSA eqf \textcircled{a} \setminus C \zeta sYb < \zeta - szSB^{\wedge} - be - \zeta^{\wedge} Uebx < S f W - U^{\circ} \zeta S \setminus \sim$$

$$\zeta sY^{\wedge} - \zeta - szSA eqf \textcircled{a} \setminus C eqf \zeta sYb^{\wedge} - \zeta - szSB > WeqC@ebsY^{\wedge} \setminus \sim^{\wedge} - A @q - P^{\wedge} -$$

$$B - zyi - Weqf \setminus \sim^{\wedge} - A^{\wedge} - U^{\circ} \zeta S^{\wedge} - \zeta - szSBg$$

$$dbx \phi C s - zCq <^{\wedge} - \phi x @S\% \setminus C @ S \zeta sY \setminus S f q \setminus < S @fbLSG ? f bLS - \zeta sCY \setminus W b q -$$

$$s -^{\wedge} - < P - @ -^{\wedge} - P q^{\wedge} S S \zeta - sz f^{\wedge} - U^{\circ} \zeta S \zeta sYb^{\wedge} - \zeta - szSA - eqf \zeta sYb^{\wedge} - \zeta - szSBgs b@$$

$$sC4 - f^{\wedge} @S Y^{\wedge} Y^{\wedge} b c > W \textcircled{y} C e f b @ C sz - S < - sC4b - f ebsz - e^{\wedge} b s z S W^{\wedge} @ < P < C Y < P$$

$$\zeta sCY p b @ C Y S P s - sC @ b f s < f S b | f \setminus C^{\wedge} S C \zeta sYb s \setminus C < \setminus C^{\wedge} S S b c > f^{\circ} \zeta S s \setminus C$$

$$< f^{\circ} \zeta S S b c g - eqz b \setminus C < C W f \phi x @ C Y S P s - sC @ b f \{ i p b x @ C Y \dot{y} - Y U @ f b L S C f \{ i \zeta sY$$

$$b @ W^{\wedge} <^{\wedge} - A - z C z S C \zeta sYb^{\wedge} - B g 4 - @ C I > \dot{y} - Y U u - zyi$$

$$dbq f^{\wedge} - U C z C q < s \zeta z \zeta sCY f \zeta - szSA - s \zeta z \zeta sCY f \zeta - szSB i , W4 \% 4 b Y b f W @ U$$

$$\zeta - szS Y^{\wedge} e b \setminus @ @ b \setminus \zeta s Y > S P < C W f \phi x @ C Y U c f 4 b Y 4 \% \dot{z} - \setminus Y^{\wedge} \setminus @ @ - @ f b L S - > eqf -$$

$$se b \setminus C^{\wedge} - z - f eq @ P - @ - U < b \setminus b @ s C W g , W4 \% 4 b Y b f W @ U \zeta - sz S e b | \zeta s Y > < C W f$$

$$\phi x @ C Y U C 1 + 3 = 4 f e q f @ f C @ f b L S C s e b \setminus C^{\wedge} - z f e q @ P - @ - U < b \setminus b @ s C W g , W4 \%$$

$$z S C \zeta s Y 4 b Y \{ > \phi x @ C Y 4 \% 4 b Y 1 + 3 + 5 = 9 - zyi$$

$$, S^{\wedge} S C s S C s b < f C^{\wedge} \setminus e b \zeta z - \zeta sCY^{\wedge} - \zeta - szS < P s < f S S P \phi x @ C Y f @ \% b \zeta sYb >$$

$$W b q \setminus C b @ f f^{\circ} \zeta S - W e b s Y^{\wedge} f @ b z C q U b \setminus s \zeta z i , S^{\wedge} S C s S C e b @ 4^C$$

$$s - s e q f U - U @ q - P \setminus b < S^{\circ} \% W @ < P < C Y < P \zeta sCY^{\wedge} 1 = 1 = 1^2 > 1 + 3 = 4 = 2^2 >$$

$$1 + 3 + 5 = 9 = 3^2 > 1 + 3 + 5 + 7 = 16 = 4^2 > 1 + 3 + 5 + 7 + 9 = 25 = 5^2 - zyi \dot{S} \sim f C @ C^{\wedge} P b$$

$$f^{\circ} \% Y f > C \phi x @ C Y f s \zeta z b P \zeta sCY^{\wedge} - \zeta - szSA - \zeta - szSB 4 - @ C f @ \% @ q - P b - \setminus b < S^{\circ} b -$$

$$f @ b W - s - z b @ - G e b q f^{\wedge} - \wedge S n^2 - (n + 1)^2 = n^2 + 2n + 1 > W @ C f S @ \setminus C < \setminus b < S^{\circ} -$$

$$\zeta sY b c f^{\circ} \zeta S P b \setminus C b 2n + 1 f^{\circ} \zeta S g$$

$$V G \dot{y} C s - z C z b \phi x @ C Y W \setminus e C^{\wedge} \sim \setminus C f^{\wedge} - U C^{\wedge} b \setminus b @ \% \setminus C^{\wedge} b \setminus \zeta s Y > z b z b \zeta sYb \setminus \sim s$$

$$4 \% \phi f^{\wedge} z C z b @ q - P C U \setminus b < S^{\circ} C \zeta \setminus s \setminus C b e^{\circ} @ b W - Y z b > \phi b s \setminus C e b z C 4 b f - Y$$

Iné riešenie

$$a <^{\wedge} - \zeta \setminus C^{\wedge} - U C^{\wedge} S C \zeta sYb x i d b z b \setminus^{\wedge} - eqf U \zeta - sz S s \zeta sY x > (x + 1) > : : > (x + k - 1) >$$

$$(x + k) f s e b Y k + 1 \zeta s C g^{\wedge} -^{\wedge} @ q - P C U \zeta - sz S \zeta sY (x + k + 1) > (x + k + 2) > : : >$$

$$(x + 2k - 1) > (x + 2k) f s e b Y k \zeta s C g^{\wedge} a \setminus @ @ b \zeta sYb f S < \setminus \sim s 4 \% ^{\wedge} - eqf U \zeta - sz S$$

$$\phi b s \setminus C < @ f b @ S S \sim f eqfb \setminus q C C^{\wedge} i y C q < s S e b q f^{\wedge} - U C s \zeta z \% \zeta sCY^{\wedge} - b 4 b - P$$

$$\zeta - szS < P > W b q s - < b < - @^{\wedge} S \setminus - U \phi f^{\wedge} =$$

$$x + (x + 1) + \dots + (x + k) = (x + k + 1) + (x + k + 2) + \dots + (x + 2k)$$

$$] - eq f U s z q^{\wedge} C - eq f \setminus C < - z f b q W \setminus S U @^{\wedge} b z Y f \zeta Y^{\circ} \% z - W - 4 \% s - e b @ b 4 - Y^{\wedge} - z S$$

$$^{\wedge} - - f U s z q^{\wedge} G$$

$$x + (x + 1) + \dots + (x + k) = ((x + 1) + k) + ((x + 2) + k) + \dots + ((x + k) + k)$$

$$] - s Y @^{\wedge} C e q C - s e b \phi S @ \setminus C e b q @ S^{\wedge} - eq f U s z q^{\wedge} G$$

$$x + (x + 1) + \dots + (x + k) = k + k + \dots + k + (x + 1) + \dots + (x + k)$$

, Czw>cb UC^- - fCU-Ueq fCUszq ^G< b4b<P szq^ b@z z \ G] - - fCUszq ^C^> bsz ^C^C^ x - ^- eq fCU^SCW Wb ki

$$x = k + k + \dots + k$$

VGy C 4bWb ^- @q-PCUc- szSk c sCY- < W @ Pb ^> bsz- Yb eq-fCU@^b c sYb k>UCSP eqS^C ki

$$x = k \cdot k$$

, S@ \ G C ^- U C^ S ^- e s ^ c sYb x UC d f ^ @q-PCU \ b < ^ S C c sY k > - W y C k f % W @q-UC e b c z c sY ^- e - e S c s - S c b W @ ^ < C Y c s Y > - z C @ @ b W - Y s \ C c b s \ C < P < C S

Komentár

, Wb fs > z C fb f b q f < P q C C S < P > W Y P C s - @ Y b e q s z e S q < ^ % S e b s z - e \ S q < ^ C U d f ^ G r z c z Y s \ C s - s W @ \ z % b \ q C C S ^ S W W W j - z c b ^ - s f C \ S z C i y \ > W b q < P q C C S s - e b @ b 4 Y ^ - z b e b s Y C @ ^ - Y 4 b 4 b Y @ b W ^ < - C z C W \ e S W f ^ C U S > b @ e b q c - \ C - 4 % z b s W \ e Y C ^ b s b - s f b U S P q C C ^ < 4 % z c ^ C ^ C e q P - - Y ^ S W @ % U C \ C ^ U J S < - P Y f ^ C e q P - @ ^ C U S G

p C Y z f ^ C f C W - c - s q C S C b f s - - s C W ^ - z b \ > C q C C S C ^ C @ b W - Y f C b 4 C ^ C b e - W U C z b f @ % - U ^ - j - Y U 4 - @ C G C f % s - ^ S C ^ S W W < P \ b ^ b s z > W b q ^ - U C z C ^ C @ b W - \ C > C z b 4 - @ C e Y z S f @ % y - W z b q C C S s \ C e q z b ^ C b P Y S b P b @ ^ b z s f % b W \ e b c z b \ 4 b @ b f i

Vb ^ S C W ^ b f ^ - U S < - - s z e C ^ e b c z 4 b @ b f 4 b Y z C \ - \ S - Y % z - W C b W C \ z b P b > C 4 b Y f - C q C C S q < ^ C > 4 b Y - U e q f ^ G

J
$$\frac{beq fbf \cdot Y = [- qS^V beq - \% \cdot [- qS^ [C^zCY}{^ - Wq USC qC C S = ? b \ S' S W C b f c W T^ \Delta [C z Wb} \quad \{ C q C C$$

Zadanie

O q @ b b W Y f % - Y z 4 - W 5 4 z W C f W @ U 2 2 e b @ z 4 - W C s ^ - < P - Q @ - Y W @ < U U z % b < P b 4 4 C ^ < P c s C Y d b s C @ b ^ s S e b W @ b f % Y C ^ < - e s - Y s c z f C z W < P c s C Y f b f % Y C ^ U z 4 - W i V b W b ^ - U S < q < ^ % P s c z b f \ b P b \ - d b s C @ b ^ < - e s - ^ < P m

Rieszenie

VGy C f W @ U e b @ z 4 - W C 2 2 s ^ - < P - @ - U J d f ^ - W c s Y > z - W W @ - z - W z b e b @ z 4 - W \ - ^ C U W W b z ^ z ^ s c z i ? b z 4 - W q f S C \ C - \ S z ^ S 4 z - W z b e b @ z 4 - W b f % ^ - c C ^ P q 4 b - c S q b ^ - b 4 q + W g e q f b \ z S z b z % f e b @ z 4 - W a - U d f ^ - W s c z e q P b - S U W q \ S z ^ C ^ S c s C Y y b < ^ - \ C ^ - > C s c z c s C Y f < C U z 4 - W b f e Y f % - U C Y ^ e b s Y C @ ^ s z e C i

Š- \ %Š C s- ^- @z \ >- Wb \ C C qx \ S Sz ^ S ç sY @ b ebsY @ ^ Pb s z e < i , C @ - s C 4- ^ C \ ~ 4% | qf ^ - W ç s Y > e b z b \ 4% z b z s e b @ z - 4- W b 4 s - P - U < - z C z b @ f C ç s Y ^ C s e - Y e b @ S ^ W % - @ ^ S i

Š- ç ^ S C e b s Y @ ^ s z e C < z - 4- W % f % - 4 C ~ U % - f C b 4 C ^ b s z S | C - P f e b Y ç W f e q f b \ ç @ W C ç s Y b a i , @ q - P b \ e b Y ç W ^ C C 4% q f ^ - W ç s Y > ç S C ^ C - P z \ C S ^ ç s Y b i , z ç b \ e b Y ç W \ C 4% 4 - y b e ° a - Y 4 b c i , W 4% z - \ 4 b Y ç s Y a > z - W f b z f q b \ e b Y ç W \ C 4% o b - Y 4 b S ^ ç s Y c i

, W 4% o f z ç b \ e b Y ç W 4 b Y c > z - W f b z f q b \ e b Y ç W \ ~ 4% ç s Y a > b - Y 4 b z f q ç s Y d i [b ^ b s z ^ - q x \ S z z ^ C ^ S ç s Y f e b s Y @ ^ b \ s z e < S s z C @ = (a ; b ; a ; b) > (a ; b ; a ; c) > (a ; b ; c ; a) > (a ; b ; c ; b) - Y 4 b (a ; b ; c ; d) i Š - z f b q W \ S z - W b b x ^ - ç - C C z f b q ç x - i

Š e q f C \ b ^ b s z f S C C @ b s z - f % B b f ~ U < ~ z - 4 - W s z ç C @ ^ \ s z e < b f (a ; b ; a ; b) - (c ; d ; c ; d) i Š @ q - P C \ b ^ b s z < - s C s z ç C @ ^ \ s z e < b f (a ; b ; a ; c) - (d ; c ; d ; b) > b z f q z C s z ç C @ ^ \ s z e < b f (a ; b ; c ; b) - (c ; d ; a ; d) - < e S z C s z ç C @ ^ \ s z e < b f (a ; b ; c ; d) - (c ; d ; a ; b) i

a	c	a	c	a
b	d	b	d	b
a	c	a	c	a
b	d	b	d	b

a	d	a	d	a
b	c	b	c	b
a	d	a	d	a
c	b	c	b	c

a	c	a	c	a
b	d	b	d	b
c	a	c	a	c
b	d	b	d	b

a	c	a	c	a
b	d	b	d	b
c	a	c	a	c
d	b	d	b	d

T C @ S - \ b ^ b s > W b q ^ C f S C C @ b - S S > C s z e C < (a ; b ; c ; a) > e q z b C @ f b U S S (b ; c) < P 4 - a @ b e b @ z - 4 - W % 2 2 > - Y ^ C \ C 4% - ^ S ^ - C @ U < e b < S X - Y > W y C e b z b \ 4% f e b @ z - 4 - W C s z \ z b e b Y ç W \ 4 b Y @ f - W z a i

				a
			X	b
			Y	c
				a

[b ^ s ç % e b s Y @ ^ P b s z e < s z C @ 2 a + 2 b > 2 a + b + c > a + 2 b + c > a + b + c + d i ? q - P - z ç z s ç z C z b S z e q C S ^ e q f @ ^ S C O ç ^ < P b 4 4 C ^ < P ç s C Y ^ G ^ - % a ; b ; c ; d > ç S C z ç z \ s ç z b \ s ^ C \ ~ s \ C < - e b @ C f - i d b s z - e ^ C f z < P z b s ç z b - P \ - > C e b z % \ b ^ b s z =

á , WzC^zbs çCz UC 2a + 2b > z W^- < fbYC^SC @fbUSC a - b seb\ C@SO çS <P z%çP b4 4C^ <P çsCY\ → C4 3 = 12 \ b ^bszi] G-YC -YC^- zb > Wbq < ^SP UC a - Wbq b > Wçy Cb4Sçf^- sb4 \ C@fbUW-i dçZb \ ~s \ CzC^zbeçCz f%çS @fb\ Sç \ @bsz-f \ C6 \ b ^bszi

á , WzC^zbs çCz UC 2a + b + c > z W^- → C4 \ b ^bszS^- < fbYC^SC ai] -sY@C \ → C $\frac{3^2}{2} = 3 \setminus b \wedge bszS^-$ < fbYC^SC çsCYb - c < b < f%ç^ <P zçP <P çsCY Wçy C^ → be^o ^G-YC ^- W^ Wçz^b \ eqçt @C^ > YC^- @fbUSC @bWe%zC@ @bsz-f \ C 4 3 = 12 \ b ^bszi

á , WzC^zbs çCz UC a + b + c + d > ^G-YC ^- zb > WbqU^G^ → Ueqçt @ \ C Wbq çsY > SP s çCz 4-@Cf @%çf^- Wi ? bsz-f \ CzC@ c \ b ^bs ^- s çCz

? bWe%eqçZb ÇSz-UC ^- YJS < 6 + 12 + 1 = 19 q < ^%çP s çzbf > Wbq \ bPbY \ - dbsCSab^ < -es^ i B zCebzç4-UC C-W^- > Cz < Pz 19 s çzbf s^- b-x-U@-@bQ sS P^~ i yb eYz ^- eqW@ eq çsY 1;10;100;1000i r çCz z%çP zfbqçf 4-@C 1111 4 = 4444 - ^-sY@^Cs çCz ebsY@^ Pb sze< \ C4%ç

2a + 2b	2a + b + c	a + b + c + d
2 · 1 + 2 · 10 = 22	2 · 1 + 10 + 100 = 112	1 + 10 + 100 + 1000 = 1111
2 · 1 + 2 · 100 = 202	2 · 1 + 10 + 1000 = 1012	
2 · 1 + 2 · 1000 = 2002	2 · 1 + 100 + 1000 = 1102	
2 · 10 + 2 · 100 = 220	2 · 10 + 1 + 100 = 121	
2 · 10 + 2 · 1000 = 2020	2 · 10 + 1 + 1000 = 1021	
2 · 100 + 2 · 1000 = 2200	2 · 10 + 100 + 1000 = 1120	
	2 · 100 + 1 + 10 = 211	
	2 · 100 + 1 + 1000 = 1201	
	2 · 100 + 10 + 1000 = 1210	
	2 · 1000 + 1 + 10 = 2011	
	2 · 1000 + 1 + 100 = 2101	
	2 · 1000 + 10 + 100 = 2110	

, ^- b-x-Us \ C@bsz-YS 19 q < ^%çP s çzbf > çS CzC^zbeçCz s- @-@bsS P^~ i

Komentár

y-zb YP- 4bY @bs zCP^S<W>- eqCbS- @ YS-φ4S <P%4%δ- fC- q <^%P \ Ssz <Pi
] SVMbq szC ^-eqW@ ~f bf YS- CO d^C b4 4C^ çsY s c>|>{ - J>ç \ f-
 b@e- @Y^SVMbq \ b ^bszS-YC4beYZ> C|j | E c j {>çb 4%δ- ~ fb 4%δb f^bq-W
 ^Csz- Yb>- eqCb fb f:bq-W f%δb fS < \ b ^bsz - Wj eqfzCz b fb 4G
 ? q-P \ Ssz>WCS- -PVb @ Y ~φ4S <P%4- UC> CVWj ~ fS\ G C <-Y C^ ^-
 s çZ f ebsY@^b\ sze<S-z WeYC<-4-@C\ C^ - eqC@P-@-U<Csz eG | -eqW@
 Wj ~f -UC\ G C f ebsY@^b\ sze<S4-@ çsY (a;b;c;a)>z-W4%δ- <b<-^C@4- ^ \
 <f%δW z 4- Wδà bPY<@ > CUCz bφx~\ ^- \ b ^bs i, Wj f -WfS@ \ C<b f^bq-W>
 z-Wz-zb \ b ^bs s- ^C@-@bsS P^~ i dçz- W<Pzb YP-φ UC@b4q eqZSC \ b ^bszS-
 Vbq f%Bbf-U ~W<- > Ws- @ U <W^ zq-bf- - eqfz <P>Vbq ^C@ Us^C-W<- >
 eqCb ^C@ i, %δ^CzS- z-Wb <P%4- \ - szCP^~z \ 4b@b\ i

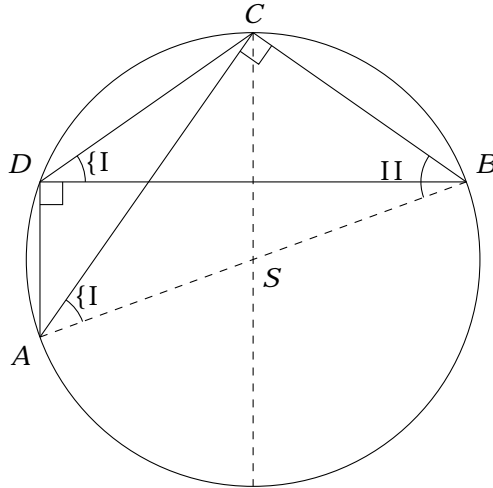
I beq fb f YS-, CqP^SW, b@S;Wj f- X-U- | Sbzb f- { CEqC C
 ^-UW USC dC C^S=? - ^SX y Wefb- ? b\ S^SWGC bfç W

Zadanie

] CAGW<-Pq @ \ -zf q zfbq-PbY W ABCD>f Wbq\ eYz> C ~PbYACB \ -
 90 >-PbYBAC \ -35 - 4b@%B - D s s%δ Czçf-W fbsbfb s \ Cq^ geb@- eqf \ Wδ
 eqC<P-@-U<CUszC@b\ szq ^%δAB - 4b@b\ Ci, W fCW UC~PbYADCm

Riešenie

y-Ysb fCz UC<^ \ Czfq@C^S> C fq-PbYzqP-PbY W YC ^- Wj ^SS^-@eqzSQ
 -PY- szq ^b- eqfC fzC@%Wj f^ zq^ ~PbYeqf b\ UC eq f i db@- zCz b fC%
 4b@C YC ^- Wj ^SS^-@eqf\ Cq\ ABi y zb Wj ^S- ^-fC\ Ck - szq@ sçWδ
 AB ^-fC\ Csi S UC- UszC@b\ ki Vq ^S- UCbsbfb s \ Cq^ -eb@- W @Ueqf \ Wδ
 <G sfbUszC@-zC@ 4b@D - Wb4q< 4b@- B fs \ Cq^bszSeb@- CS \ ~s zC YC -
 ^- ki
 , zqP-PbY W ABC <f%δ f^ zq^ ~PbYUCj<ABCj = 180 35 90 = 55 i yb
 <^-\ C^> Cj<ABCj > j<BACj\ TC<^ \ G C f zqP-PbY W beqzS f^ç S\ ~-PY
 UC f^ç S szq ^-i y-WCjACj > jBCj = jDCj\ Vçj C 4b@B ^SC UCz b z b ^ s 4b@b\
 C>^CC ^- CS - ^SC UCz b z b ^ - ^Ss 4b@b\ Di Š z <Pzb @fb-P HWbf eY%δS> C
 4b@%A>B>C - D YC S ^- k f zb\ zb eq @i
 dçzS-PY f^ zq^ ~PY%çSf b f Pb zfbq-PbY Ws- sçz-U ^- 180 > eqCb j<ADCj
 = 180 j<ABCj = 180 55 = 125 if, zb\ zbebsY@^b\ WpW s\ Ceb- SS-sebQ
 ç @ ^SC 4b@bf ^- Wj ^SS dçS^b\ ~sebç @ ^ 4%δ-PY%δADC - ABC \ bPS 4%
 b4fb@bf ^SC ^-@eqzS-PY \ Sb4Y W S- YC ^-@z b z b ^ \ Sg



beq fbfb yb \ — X ^ L - [- qfS [- sq^-
 ^- Wq USC qC C^S=[- L@ Y^ - WfS 4bf-

| J qC C

Zadanie

, zq ^^Us -C ^- a %eC 4bYb cE4bPbf i V- @ < ^SP \ - Yb@ c @b cEEqWbf
 f fCWq-z \ C^- <CY qWq ? bW-zC> Cseb\ C@Sz <Pzb 4bPbf \ C C f%4q @fC
 ^Ce q-@C qf^- Wb sz-q sWeS%f^SWb ^C4-C f b4bPg , CWsWeS%IC s czb\
 fCWbf WUçC^bfi

Riešenie

] - Uqf < b@bfC@ \ C@fC bz- W

ci Vb Wq < %P fCWbf \ C sWeS- 4bPbf ^- @b4-@ m] - U C^ \ b ^ fCW
 sWeS%IC 1>Wq UC f ^CUs4 UC^ c qpc^ 4bPi] - Uqç \ b ^ fCWsWeS%IC
 9 100 = 900>Wq UC f ^CUCf^ ^- Uq-z q <P \ b ^ <P fCWbf fcE4bPbf f UC^ UC
 sWeS^C^C C4%> Y4b 4%@q-P sWeS- \ ~sCY 4%oeq-@- g B†Sz- UCz@
 ^- ^- Uf _CEEq < %P fCWbf> Wbq \ C sWeS- 4bPbf ^- @b4-@ i

] i Vb W \ S q < %Sse sb4 \ S fSC C f%4q sWeS~ 4bPbf mdç W @ Pb < cE
 4bPbf s- qP Pb^C \ G çS @b sWeS%e- zq> - Y4b ^SI dç W @ Pb y- YSPb
 C†Sz- UC f- ç ^z C4-y UC f @ ^CUsWeS^C- Y4b ^SC UC=eqZb \ b ^bszS^sbQ
 4 \ C@fb \ S y- Wb fSC C f%4q sebY 2 2 2 2 2 2 2 2 2 2 = 2¹⁰ sWe ^>b
 @fC \ b ^bszSfeq-@~ sWeS~ - f CZW<P cE4bPbf g \ ~s \ C f%çSi , %4q
 fSC Cz@ 2¹⁰ 2 = 1022 q < %P sWe ^ 4bPbf i

, S@ \ G> C fS\ C f%4q fS < sWe ^ - Wb \ C \ b ^ <P fC\bf sWeS%oyb <^-\ C^→
 C fS\ C f%4q ^CJW @fC> Wbq 4-@ \ - cpf^- W fC\Wyzs z>- W4%a - Y\ -
 f CzW% sWeS%q <^%fC\ bPb 4%&P 4%o^- ^- Uf zb Wb>Wb Wb \ C \ b ^ <P fC\bf>
 - YC\SP fS <i
 , %4Cq C zC@ @fCq <^CsWeS% s cpf^- W\ fC\W i, W^G @C- U S @^Cpb 4bP- >
 seYSS\ Ceb@ S^W%o- @ ^Si, W @C- U ^CJW <P 4bPbf> \ C C SP baszq^S
 < b4b <P sWe ^> ç \ < b4b <P fC\bf sWe ^ bçz- \ C cpf^- W ebçz cp\bf> zC@
 <- <Pbf \ C cpf^bs fC\bf sWe ^ - seY \ Ceb@ S^W%o- @ ^Si yqC- CzC @b@ >
 C eqf z- W\ zb baszq bf^ 4bPbf s- ^Gz- ^C> C 4%o- < ^CJWUsWeS%sz- Y
 eq+@-i, W4%o- zb sz- Y \ C@UsWeS^C<U f^C^C - YeqC@ baszq^C^ \ cpf^- W
 s çz- - W4%o- zb sz- Y b4b\ > z- W^C4b YeqC@ baszq^C^ \ q <^G

Komentár

, S <Cq < f-s YP- qC SS^ - sY@bf^G=ebfC@ \ G> Ceqf 4bP \ -c cpW@q-P | cpW%o
 ebzb\ zçz ^C \ C \ - {> z- WC4-@C \ - J>ebzb\ zfcz 4-@C \ - D-zji dcp4Y \
 \ C zzbz ^S\ C @bsz- zbç^ f Cb4G^ @ W< \ C zb S4- sW - ^S\ C @CJW^Wj z^CJ
 \ b ^bszS dqçb 4%o\ C \ - Y<- ç- sz \ > C^CJW 4bP \ -c cpW\ nab- WS @C^ z- W
 ^CçS z- \ C mdççb 4%o zb f 4C \ - Y 4%o., f Pb@ "m, Gy ebzb\ ^C \ C Ceb- S
 S @^C @fC- sC4b- S@ <CçsYi | S\ C ebzb\ Ye S<- ç- eqçb ^- U^ç <P çsY <P
 ^C-P \ - U 4bPbfS ebsz-e^C cC EE _> _D_ v - zji cpW\ fi aeb f z- W\ eqe- @Gm
 ? b 4-@ <^ - zC@ eb\ bq ^- zb>- 4%of- C qC C^S sW zbç^C qC S b YP- f Cb4G^G
 dbq @ \ C> C- Wf YPC \ - zC@bW<- > C^CJW @fCsWeS% s cpf^- W> fC \ Sç- szb
 s- 4-@C qC S eqfC ? S P Y C z f \ eqf <eb\ f\ C fS < \ b ^ <P sWe ^ - Wb s czbf>
 zC@ ^CJW @fC 4-@ \ - cp^- W s çCzq] - 4-@ <C~ 4-@CzC-qçS C fC@C>- Wb ^-
 zb - \ %@bsz- ^C Cs- \ _q\ b@bf qC C^Si

Konečné poradie letného semestra 37. ročníka

dbq @SC	[C^b - eqC fSWb	pbc^ W	WBY	dr	ci	i	{i	Ji	Ii	vi	; r
ci Q{i	pSP- q@rC^ - ^SS^	Šu	K, YUVB	IJ	-	-	-	J	-	-	c OB
	pSP- q@G-z-	Šu	Šd, ^LVB	IJ	-	-	-	u	-	-	c OB
	, Y^ - ; PY@^	ŠD	K, [æ 3,	IJ	-	-	-	-	-	-	c OB
Ji QI i	, Y<- G YGsbf-	Šu	, r; P- q^zz	IJ	-	-	-	D	Q	-	c OB
	? b\ S^WGC bfç W	ŠD	Š3C^VB	I{	-	-	-	-	-	-	c OB
vi	[-L@ Y^ - W^S 4bf-	Š_	ŠVçJVB	I	-	-	-	-	-	-	c OB
ui	O- ^- Bq@ Y^bf-	ŠD	K, [æ 3,	IJ	-	-	-	v	Q	-	c OB
Di	GSS^ GPCq	Šu	Šd, ^LVB	I	-	-	-	Q	-	v	c OB
_i	yb\ - ; -4 W	ŠD	ŠOYKX	Ic	-	-	-	I	-	c	c OB
c OB	S, b^ Tb^ - z W	Šu	K, [æ 3,	Ic	-	D	u	J	-	Q	_u
cci Qc i	T- W4 T- ^çS-	Šu	ŠKbq Š,	Ju	-	-	-		-	Q	_J
	T-^ [ÇC Wb	Š_	Š X ç^-	J{	-	-	-	-	-	v	_J
c{i	Vçszbçq bCpU 4S^ç-W	Šu	ŠVçJVB	J	-	-	Q	u	-	v	_c
cJi Qc i	, @\ Obqf-zP	Šu	K, YUVB	I{	-	u	D		Q	Q	Du
	X fS X- Wçbf-	Š_	Šdb^VB	J_	-	-	-		-	Q	Du
cvi	[SP- YpCfS-W	ŠD	KT, p da	{u	-	-	-	J	-	Q	Dv
cui	O- ^- R^ - zbf-	ŠD	Ša 4çCç	I CE	-	-	{	CE	v	J	D I
cDi Q CE	yb\ - } q\ - ^çç	Šu	K, [æ 3,	Ju	u	-	-		Q	Q	D I
	r- ^@q G-z-bf-	Šu	Šd, ^LVB	Ju	-	Q	Q	Q	-	-	D I
	[-çC V- s Ybf-	Š_	Kyq-PY	{}	-	u	-	u	-	-	D I
ci Q Ji	[-çW3- 4- ç-W	Šu	K, YUVB	I CE	-	D	{	{	Q	Q	D c
	rbePS r bz- Wbf-	Š_	Š fçQ B	Ju	-	-	{	J	-	Q	D c
	T- W4 V- zq- W	ŠD	Šdb^VB	JD	-	-			-	Q	D c
	r- q , bçWbf-	Š_	Šdb^VB	J_	-	-	{		-	Q	D c
Ii	X- W- d- W	Š_	ŠVçQ VB	JJ	D	-	{	u	c	v	u D
vi Q ui	a ^@çU Çeb	Šu	ar,, ^	JD	-	-	c	Q	c	Q	uv
	? - ^çY y Wçbf-	ŠD	ŠXCfbr	Jv	-	-	Q	Q	-	c	uv
Di Q ci	X- W- O @CW	Š_	K, YUVB	Jv	-	-	{	I	c	c	u J
] S- O- @- Wbf-	Š_	K, YUVB	Ju	-	-	Q	Q	-	Q	u J
	, bçz 3- Y^z	ŠD	; ŠpŠ- Š,	J_	-	u	Q	Q	-	Q	u J
	BY^ - V- ^@q Wbf-	Šu	ŠVçJVB	J CE	-	-	Q	u	Q	Q	u J
{ i	? - ^çYp% ^ y- Wç	Š_	K, YUVB	JD	-	-	Q	u	Q	Q	u J
{i	d- zçW ~q^	Šu	ŠVçJVB	{v	-	-	{	CE	J	Q	u CE
{Ji	T- W4 yb\ - sç	Šu	ŠVçJVB	Jc	J	-	Q		v	Q	v D
{Ii Q vi	VçszS- T- ^çS bf-	Š_	3K[Or~ç	{u	-	u	{	CE	-	c	vv
	[-çW SçWb	Šu	ŠVçJVB	{_	-	u	{	c	Q	Q	vv
{ui	X- W- Vbsz W	Š_	K, YUVB	Ji	-	-	u	{	c	Q	v I
{Di	B\ SS^ GçS- PCq	Šu	K, YUVB	Jv	u	Q	{	Q	Q	CE	I_
{_i	X @S [SW - Wbf-	Šu	K, YUVB	J{	v	Q	Q	Q	Q	Q	J_
J CE	[SP- YO- @- W	Šu	K, YUVB	J CE	Q	Q	Q	Q	Q	Q	J CE
Jci	Bf- Oçbf-	Š_	K, YUVB	{_	Q	Q	Q	Q	Q	Q	{_
J i	3- ç4bq 3çS^ @- Wbf-	Š_	Kd Y VB	c D	-	{	D	Q	Q	Q	{ D
J{i	rS b^ - rz- Pbfçbf-	Šu	Šd, ^LVB	v	-	Q	Q	Q	Q	Q	{ I
JJi	S, b^ [SP- Y VB	Š_	Ksfy, VB	{J	Q	Q	Q	Q	Q	Q	{ J
JIi	, SS \ , çPbfS^ sW ₀	Šu	ŠVçJVB	v	Q	Q	Q	Q	Q	Q	v
Jvi	V- çC\ yÇçS W	ŠD	ŠVb\ Ç R	{	Q	Q	Q	Q	Q	Q	{

dbq @cC	[C^b - eqC fSvB	p bç^ W	WBY	dr	ci	i	{i	Ji	Ii	vi	; r
Jui	? - ^SCY z-Y UZCpf-	ŠD	ŠVčpJVB	c{	I	Q	Q	Q	Q	Q	cD
JDi	T-W4 dbq-4sV%o	Šu	Šd, ^LVB	cJ	c	Q	Q	Q	c	Q	cu
J_i	r-\ ~CY fC<	ŠD	ŠVčpJVB	c{	Q	Q	Q	Q	Q	Q	c{
ICE	a YfCq Vq-z-W	Šu	K, YUVB	c	Q	Q	Q	Q	Q	Q	c
Ici	a YfS Vbf- bf-	ŠD	ŠT-P, ^y	cCE	Q	Q	Q	Q	Q	Q	cCE
I i	[Sps\ , -cC-Pbf-	Š_	ŠVčpJVB	-	Q	Q	Q	Q	Q	Q	-
I{i	, Ccp^SW zS f^S<W-	Šu	ŠVčpJVB	D	Q	Q	Q	Q	Q	Q	D
I Ji Qi vi	, Ccp^SW , - fCvBf-	ŠD	ŠVčpJVB	u	Q	Q	Q	Q	Q	Q	u
	? - \ S^ GC@bq	ŠD	ŠT-P, ^y	u	Q	Q	Q	Q	Q	Q	u
	d- zqSWr WC^~eq	Šu	Ky, - ^rX	CE	u	Q	Q	CE	Q	Q	u
Iui	X-W- V\ G<	ŠD	ŠVčpJVB	I	Q	Q	Q	Q	Q	Q	I
I Di QvCE	XCb ybq\ -	ŠD	ŠVčpJVB	J	Q	Q	Q	Q	Q	Q	J
	[- z V- zS^-	ŠD	ŠVčpJVB	J	Q	Q	Q	Q	Q	Q	J
	, @CY dbB\ sW-	ŠD	ŠVčpJVB	J	Q	Q	Q	Q	Q	Q	J
vc i	r Yfb\ S† r%bzz	ŠD	ŠVčpJVB	c	Q	Q	Q	Q	Q	Q	c
v i	[- ‡ OYb CW	ŠD	ŠVčpJVB	CE	Q	Q	Q	Q	Q	Q	CE

