# Tax Year 2022 Individual Income Tax Rates, Standard Deductions, Personal Exemptions, and Filing Thresholds

\$1,400

#### If your filing status is Single

Taxable II		
i axable ii	icome	
	But not	Marginal Rate
Over	over	- Warginar rate
\$0	\$10,275	10%
\$10,275	\$41,775	12%
\$41,775	\$89,075	22%
\$89,075	\$170,050	24%
\$170,050	\$215,950	32%
\$215,950	\$539,900	35%
\$539,900	and over	37%

## If your filing status is Head of Household

Taxable II	ncome	
	But not	Marginal Rate
Over	over	iviarginar reace
\$0	\$14,650	10%
\$14,650	\$55,900	12%
\$55,900	\$89,050	22%
\$89,050	\$170,050	24%
\$170,050	\$215,950	32%
\$215,950	\$539,900	35%
\$539,900	and over	37%

#### Standard Deduction

	Standard Amount	
0: 1	***	
Single	\$12,950	
Married Filing Jointly or	\$25,900	
Head of Household	\$19,400	
Married Filing Separately	\$12,950	
	Filing Status	Additional Amount
Plind or ago 65 or older	Single or Head of Household	\$1,750
Blind or age 65 or older	Others	£1 100

#### Filing Threshold

	Age	Gross Income
Single	under 65	\$12,950
Sirigle	65 or older	\$14,700
	under 65 (both spouses)	\$25,900
Married Filing Jointly	65 or older (one spouse)	\$27,300
	65 or older (both spouses)	\$28,700
Overlift in a Mideratory	under 65	\$25,900
Qualifying Widow(er)	65 or older	\$27,300
Head of Household	under 65	\$19,400
Head of Household	65 or older	\$21,150
Married Filing Separately	any age	\$5

**Source**: IRS Revenue Procedure 21-45, accessed January 25, 2022. https://www.irs.gov/pub/irs-drop/rp-21-45.pdf

## If your filing status is Married Filing Jointly or Qualifying Widow(er)

widow(er)		
Taxable II	ncome	
	But not	Marginal Rate
Over	over	warginai rtate
\$0	\$20,550	10%
\$20,550	\$83,550	12%
\$83,550	\$178,150	22%
\$178,150	\$340,100	24%
\$340,100	\$431,900	32%
\$431,900	\$647,850	35%
\$647,850	and over	37%

## If your filing status is Married Filing Separately

	ncome	Taxable Ir
Marginal Rate	But not	
ivialginal Nate	over	Over
10%	\$10,275	\$0
12%	\$41,775	\$10,275
22%	\$89,075	\$41,775
24%	\$170,050	\$89,075
32%	\$215,950	\$170,050
35%	\$323,925	\$215,950
37%	and over	\$323,925

Threshold for Refundable Child Tax Credit	
	Earned Income
All filers	\$2,500
Personal Exemption	
	Amount
All filers	\$0

# Tax Year 2021 Individual Income Tax Rates, Standard Deductions, Personal Exemptions, and Filing Thresholds

15		£:1:	-4-4	:_	Single
IT	vour	TIIIna	status	IS	Single

not
er Marginal Rate
\$9,950 10%
40,525 12%
86,375 22%
64,925 24%
09,425 32%
23,600 35%
nd over 37%

#### If your filing status is Head of Household

Taxable li	ncome	
	But not	
Over	over	Marginal Rate
\$0	\$14,200	10%
\$14,200	\$54,200	12%
\$54,200	\$86,350	22%
\$86,350	\$164,900	24%
\$164,900	\$209,400	32%
\$209,400	\$523,600	35%
\$523,600	and over	37%

## Standard Deduction

	Standard Amount	
Single	\$12,550	
Married Filing Jointly or Qualifying Widow(er)	\$25,100	
Head of Household	\$18,800	
Married Filing Separately	\$12,550	
	Filing Status	Additional Amount

Single or Head of Household

Others

#### Filing Threshold

Blind or age 65 or older

	Age	Gross Income
		_
Single	under 65	\$12,550
Single	65 or older	\$14,250
	under 65 (both spouses)	\$25,100
Married Filing Jointly	65 or older (one spouse)	\$26,450
	65 or older (both spouses)	\$27,800
O 1:6 :: Wi-1/	under 65	\$25,100
Qualifying Widow(er)	65 or older	\$26,450
	under 65	\$18,800
Head of Household	65 or older	\$20,500
Married Filing Separately	any age	\$5

Source: IRS Revenue Procedure 20-45, accessed January 25, 2022

https://www.irs.gov/pub/irs-drop/rp-20-45.pdf

## If your filing status is Married Filing Jointly or Qualifying Widow(er)

widow(ei)		
Taxable Ir	ncome	
	But not	
Over	over	Marginal Rate
\$0	\$19,900	10%
\$19,900	\$81,050	12%
\$81,050	\$172,750	22%
\$172,750	\$329,850	24%
\$329,850	\$418,850	32%
\$418,850	\$628,300	35%
\$628,300	and over	37%

#### If your filing status is Married Filing Separately

Separatery	tus is married Fill	ii your iiiiig stat
	Income	Taxable
	But not	
Marginal Rate	over	Over
10%	\$9,950	\$0
12%	\$40,525	\$9,950
22%	\$86,375	\$40,525
24%	\$164,925	\$86,375
32%	\$209,425	\$164,925
35%	\$314,150	\$209,425
37%	and over	\$314,150

## Threshold for Refundable Child Tax Credit

	Earned Income
All filers	0.9
 All filers	ΨΟ

## Personal Exemption

\$1,700

\$1,350

	Amount
All	ilers \$0

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47/<83

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Khdg ri Krxvhkrog

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54/<83

49/783

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58/:33

57/783

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46/683

53/:33

Khdg ri Krxvhkrog

Pduulhg ilolqj mrlqwo|

Khdg ri Krxvhkrog

Pduulhg ilolqj mrlqwo|

## 5348 Lqglylgxdo Lqfrph Wd{ Udwhv/ Vwdqgdug Ghgxfwlrqv/ Shuvrqdo H{hpswlrqv/ dqg Ilolqj Wkuhvkrogv

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	Exw qr		_		Exw qr		
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6:/783	′<3/:83	58 (		':7/<33	484/533	58 (	
'<3/:83	'4; 633</th <th>5;(</th> <th></th> <th>484/533</th> <th>1563/783</th> <th>5;(</th> <th></th>	5;(		484/533	1563/783	5;(	
4; 633</td <td>744/833</td> <td>66 (</td> <td></td> <td>1563/783</td> <td>744/833</td> <td>66 (</td> <td></td>	744/833	66 (		1563/783	744/833	66 (	
744/833	746/533	68 (		744/833	797/;83	68 (	
746/533	dqg ryhu	6<19(	-	797/;83	dqg ryh	u 6<19(	
Li  rxu ilolqj Wd{deoh	vwdwxv lv Kh	dg ri Krxvhkr	rog	Li  rxu ilolqj Wd{deoh		Pduulhg ilolqj	vhsdud
wataeon	Exw di		-	wataeon	Exw di		
/ Ryhu 000	//// ryhu 0@	Mujlqdo Udwh	<u>-</u>	/ Ryhu 000	-	0 <b>@d</b> ujlqdo Udwh	
′3	'46/483	43 (		′3	′ 558</td <td>43 (</td> <td></td>	43 (	
46/483	183/533	48 (		′ 558</td <td>16:/783</td> <td></td> <td></td>	16:/783		
183/533	45 933</td <td>58 (</td> <td></td> <td>16:/783</td> <td>':8/933</td> <td></td> <td></td>	58 (		16:/783	':8/933		
'45 933</td <td>'53<!--;83</td--><td>5;(</td><td></td><td>':8/933</td><td>'448/558</td><td></td><td></td></td>	'53 ;83</td <td>5;(</td> <td></td> <td>':8/933</td> <td>'448/558</td> <td></td> <td></td>	5;(		':8/933	'448/558		
153 ;83</td <td>744/833</td> <td>66 (</td> <td></td> <td>448/558</td> <td>1538/:83</td> <td>, .</td> <td></td>	744/833	66 (		448/558	1538/:83	, .	
744/833	76 333</td <td>68 (</td> <td></td> <td>1538/:83</td> <td>1565/758</td> <td></td> <td></td>	68 (		1538/:83	1565/758		
76 333</td <td>dqg ryhu</td> <td>6&lt;19(</td> <td></td> <td>1565/758</td> <td>dqg ryh</td> <td></td> <td></td>	dqg ryhu	6<19(		1565/758	dqg ryh		
wdqqdug Ghgxft	w]	_		Vwdqgdug Ghgxf	wlra iru Ch	aghaa	
waqgaag diigxii		olqg2Hoghuo	=		_		
Vlqjc	Vwdqgdug E	/4/883		Junawnu ri 743 hduqhg lqfrph	33 ru vxp r	i '683 dqg lqg	ıyıgxao
Pduulhg il( mrlqwo  Khdg r:	'45/933	′4/583		Shuvrqdo H{hps	wlrq	77/333	
Krxvhkrog	' 583</td <td>'4/883</td> <td></td> <td>1 1 1</td> <td></td> <td></td> <td></td>	'4/883		1 1 1			
Pduulhg ila vhsdudwho	19/633	'4/583		Wkuhvkrog iru Fklog Wd{ Fuhg		′6/333	
Ilolqj Wkuhvk							
			Qxpehu r	i Eolqg 2 Hogh	uo  H{hpswl	rqv	
		3	4	5	6	7	
/lqjoh		43/633	44/;83	46/733			

 $\label{thm:wws} $$ Vrxufh= Eorrpehuj EQD 5348 Surmhfwhg Wd{ Udwhv/ grzqordghg Vhswhpehu 4;/ 5347 iurp $$ kwws=22eqdlqirleqd1frp2sqi534724483:b5348bSurmhfwhqbWd$ $$ $$$ 

47/;33

54/;83

49/683

56/433

58/933

57/683

46/583

53/933

Pduulhg ilolqj mrlqwo|

# 5347 Lqglylgxdo Lqfrph Wd{ Udwhv/ Vwdqgdug Ghgxfwlrqv/ Shuvrqdo H{hpswlrqv/ dqg Ilolqj Wkuhvkrogv

Li  rxu ilolqj	vwdwxv lv Vl	qjoh	<u>:</u>	Li  rxu ilolq	j vwdwxv lv Po	duulhg ilolqj	mrlqwo
Wd{deoh :	Lqfrph		=	Wd{deoh	Lqfrph		
	Exw qı		_		Exw qr		
/ Ryhu 000	//// ryhu 0 <b>0</b>	dujlqdo Udwh	_	/ Ryhu 000	//// ryhu 0 <b>0</b>	<b>d</b> ujlqdo Udwh	
′ 3	′ 3:8</td <td>43 (</td> <td></td> <td>′3</td> <td>4;/483</td> <td>43 (</td> <td></td>	43 (		′3	4;/483	43 (	
′ 3:8</td <td>'69/&lt;33</td> <td>48 (</td> <td></td> <td>4;/483</td> <td>':6/;33</td> <td>48 (</td> <td></td>	'69/<33	48 (		4;/483	':6/;33	48 (	
169/<33	'; 683</th <th>58 (</th> <th></th> <th>':6/;33</th> <th>47;/;83</th> <th>58 (</th> <th></th>	58 (		':6/;33	47;/;83	58 (	
'; 683</th <th>4;9/683</th> <th>5;(</th> <th></th> <th>47;/;83</th> <th>1559/;83</th> <th>5;(</th> <th></th>	4;9/683	5;(		47;/;83	1559/;83	5;(	
4;9/683	738/433	66 (		'559/;83	738/433	66 (	
738/433	739/:83	68 (		738/433	78:/933	68 (	
739/:83	dqg ryhu	6<19(	_	78:/933	dqg ryhu	6<19(	
Li rxu ilolqj		dg ri Krxvhkr	og		j vwdwxv lv Po	duulhg ilolqj	vhsdudw
Wd{deoh :	_		=	Wd{deoh			
/ Darless 0.00	Exw di	n 'n . n. <del></del>		/ D1 000	Exw qr	.aaa	
/ Ryhu 000	//// ryhu 0 <b>p</b>	dujiqdo Udwh	-	/ Ryhu 000	//// ryhu 0 <b>0</b>	dujiqdo Udwh	
′3	45/<83	43 (		′3	′ 3:8</td <td>43 (</td> <td></td>	43 (	
45/<83	7 733</td <td>48 (</td> <td></td> <td>'<!--3:8</td--><td>′69/&lt;33</td><td>48 (</td><td></td></td>	48 (		' 3:8</td <td>′69/&lt;33</td> <td>48 (</td> <td></td>	′69/<33	48 (	
′7 733</td <td>45:/883</td> <td>58 (</td> <td></td> <td>′69/&lt;33</td> <td>':7/758</td> <td>58 (</td> <td></td>	45:/883	58 (		′69/<33	':7/758	58 (	
45:/883	1539/933	5;(		':7/758	446/758	5;(	
1539/933	738/433	66 (		446/758	1535/883	66 (	
738/433	765/533	68 (		1535/883	155;/;33	68 (	
765/533	dqg ryhu	6<19(	_	155;/;33	dqg ryhu	6<19(	
Wwdqgdug Ghgxfv	wl			Vwdqgdug Ghgxi	fwlrq iru Ghsh	ngg	
	Vwdqgdug E	olqg2Hoghuo	=	Juhdwhu ri '43	333 ru vxp ri	'683 dqg l	
Vlqjc Pduulhg il:	19/533	4/883	<u>-</u>	hduqhg lqfrph			
mrlqwo  Khdg r:	45/733	'4/533	i	Shuvrqdo H{hps	swlrq	′6/<83	
Krxvhkrog	′ 433</td <td>14/883</td> <td></td> <td></td> <td></td> <td></td> <td></td>	14/883					
Pduulhg il	10/522	14/522		Wkuhvkrog iru		16/222	
vhsdudwho	19/533	′4/533		Fklog Wd{ Fuh	3τ <sub>M</sub>	′6/333	
Ilolqj Wkuhvk							
					nuo  H{hpswlrq		
77] <sup>1</sup> - l-		3	4 4 / 22	5	6	7	
Vlqjoh		43/483	44/:33				
Khdg ri Krxvhkı	rog	46/383	47/933	49/483			

54/833

55/:33

56/<33

58/433

53/633

## 5346 Lqglylgxdo Lqfrph Wd{ Udwhv/ Vwdqgdug Ghgxfwlrqv/ Shuvrqdo H $\{$ hpswlrqv/ dqg Ilolqj Wkuhvkrogv

Wd{deoh	vwdwxv lv Vlqj Lqfrph			Wd{deoh	Lqfrph	
	Exw qr				Exw di	
/ Ryhu 000	//// ryhu 00 <b>p</b>	dujlqdo Udwh		/ Ryhu 000	//// ryhu 00 <b>p</b>	dujlqdo Udw
′3	′;/<58	43 (		′3	′4:/;83	43 (
′;/<58	169/583	48 (		4:/;83	':5/833	48 (
169/583	';:/;83	58 (		':5/833	'479/733	58 (
';:/;83	4;6/583	5;(		479/733	1556/383	5;(
4;6/583	'6<;/683	66 (		1556/383	'6<;/683	66 (
'6<;/683	733/333	68 (		'6<;/683	783/333	68 (
733/333	dqg ryhu	6<19(		783/333	dqg ryhu	6<19(
i  rxu ilolqj	vwdwxv lv Khdg	ri Krxvhkrog		Li  rxu ilolqj	vwdwxv lv Pdui	ılhg ilolqj
Wd{deoh	Lqfrph			Wd{deoh	Lqfrph	
	Exw qr				Exw qr	
/ Ryhu 000	//// ryhu 00 <b>p</b>	dujlqdo Udwh		/ Ryhu 000	//// ryhu 00 <b>p</b>	dujlqdo Udw
′ 3	45/:83	43 (		′ 3	′;/<58	43 (
45/:83	77;/933	48 (		';/<58	169/583	48 (
7;/933	458/783	58 (		169/583	':6/533	58 (
458/783	1536/483	5;(		':6/533	444/858	5;(
1536/483	'6<;/683	66 (		444/858	'4< 4:8</td <td>66 (</td>	66 (
'6<;/683	758/333	68 (		'4< 4:8</td <td>1558/333</td> <td>68 (</td>	1558/333	68 (
758/333	dqg ryhu	6<19(		1558/333	dqg ryhu	6<19(
wdqgdug Ghgxfw	7]			Vwdqqduq Ghgxf	wlrq iru Ghshqo	3
	Vwdqqduq E	olqg2Hoghuo		Juhdwhu ri '43	33 ru vxp ri '6	583 daa laal
Vlqjc Pduulhq ilc	19/433	13/833		hduqhg lqfrph		
mrlqwo  Khdg r:	45/533	'4/533		Shuvrqdo H{hps	wlrq	′6/<33
Krxvhkrog	′;/<83	'4/833				
Pduulhg il				Wkuhvkrog iru	Uhixqgdeoh	
vhsdudwho	19/433	′4/533		Wd{ Fuhglw		'6/333
lolqj Wkuhv}						
				ri Eolqg 2 Hogh		
		3		4 5	6	7
lqjoh		43/333	44/83			
ndg ri Krxvhkr	og	45/;83	47/68	83 48/;83		

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 5346048/ grzqordghg Mdqxdu| 63/ 5346 iurp kwws=22zzz1luv1jry2lue25346038bLUE2

54/533

55/733

56/933

57/;33

53/333

Pduulhg ilolqj mrlqwo|

Vlqjoh

Khdg ri Krxvhkrog

Pduulhg ilolqj mrlqwo|

# 5345 Lqglylgxdo Lqfrph Wd{ Udwhv/ Vwdqgdug Ghgxfwlrqv/ Shuvrqdo H{hpswlrqv/ dqg Ilolqj Wkuhvkrogv

walacom	Lqfrph			Wd{deoh	Lqfrph		
	Exw qr				Exw qr		
/ Ryhu	//// ryh	Pdujlqdo U	<u>Udw</u> h	/ Ryhu	//// ryh	Pdujlqdo Udwh	
′3	';/:33	43 (		′3	'4:/733	43 (	
';/:33	'68/683	48(		4:/733	':3/:33	48 (	
'68/683	';8/983	58(		':3/:33	475/:33	58 (	
';8/983	'4:;/983	5;(		475/:33	154:/783	5;(	
4:;/983	'6;;/683	66 (		154:/783	'6;;/683	66 (	
'6;;/683	dqg ryhu			'6;;/683	dqg ryhu	ı 68 (	
Wd{deoh / Ryhu	Exw qr	Pdujlqdo U	Udwh	Wd{deoh / Ryhu	Exw qr	Pdujlqdo Udwh	<u>1</u>
′3	45/733	43 (	<del></del>	′3	′;/:33	43 (	
45/733	7:/683			′;/:33	'68/683	48 (	
7:/683	455/633			'68/683	':4/683	58 (	
455/633	'4<;/383			':4/683	43;/:58	5;(	
'4<;/383	16;;/683			43;/:58	4<7/4:8	66 (	
'6;;/683	dqg ryhu			4<7/4:8	dqg ryhu		
	wl			Vwdqgdug Ghgxf	wlrq iru Ghs	shqc	
wdqgdug Ghgxf			zhuo	Juhdwhu ri '<8	3 ru vxn ri	'633 dqg lqgl	ylgxdc
	Vwdqgdug	Eolqg2Hogl	<u></u>	odiidwiid II (o	J IG VMP II		
wdqgdug Ghgxf Vlqjc Pduulhg il	Vwdqgdug '8/<83		· ·	hduqhg lqfrph			
Vlqjc	/8/<83	3 '4/5	7783			′6/;33	
Vlqjc Pduulhg il mrlqwo Khdg r: Krxvhkrog	/8/<83	3 '4/4	7783	hduqhg lqfrph Shuvrqdo H{hps	wlrq		
Vlqjc Pduulhg il mrlqwo Khdg r:	'8/<83   '44/<33 ';/:33	3 '4/5 3 '4/5	7783 7483 7783	hduqhg lqfrph	wlrq		

 $\label{thm:continuous} \begin{tabular}{ll} Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 5344085/ grzqordghg Mdqxdu| 43/ 5345 iurp $$ $$ kwws=22zzz1luv1jry2sxe2luv0qurs2us( \end{tabular}$ 

44/533

46/<83

53/983

45/983

48/733

54/;33

55/<83

57/433

</:83

45/833

4</833

Li | rxu ilolqj vwdwxv lv Vlqjoh

Pduulhg ilolqj mrlqwo

# 5344 Lqglylgxdo Lqfrph Wd{ Udwhv/ Vwdqgdug Ghgxfwlrqv/ Shuvrqdo H{hpswlrqv/ dqg Ilolqj Wkuhvkrogv

Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

_ 1J		17	i		17		1,0
Wd{deoh	Lqfrph		•	Wd{c	deoh Lqfrph		
-	Exw qr				Exw qr		
/ Ryhu	//// ryh	Pdujlqdo Udw	vh	/ Ryhu	//// ryh	Pdujlqdo	<u>Udw</u> h
′3	′;/833	43 (			'3 '4:/3	333 43(	
′;/833	767/833	48 (		′4:/3	,		
'67/833	';6/933				· .		
';6/933	'4:7/733	58 ( 5 <b>;</b> (		′9 3<br ′46 6</td <td></td> <td></td> <td></td>			
'4:7/733	'6: 483</td <td>66 (</td> <td></td> <td>1545/6</td> <td>•</td> <td>•</td> <td></td>	66 (		1545/6	•	•	
'6: 483</td <td>dqg ryhi</td> <td></td> <td></td> <td>16:<!--4</td--><td>·</td><td></td><td></td></td>	dqg ryhi			16: 4</td <td>·</td> <td></td> <td></td>	·		
· ·		Khdg ri Krxvh	krog		olqj vwdwxv l	v Pduulhg i	lolqj
Wd{deoh	Lqfrph Exw qr			Wd{c	leoh Lqfrph Exw qr		
/ Ryhu	//// ryh	Pdujlqdo Udw	vh.	/ Ryhu	//// ryh	Pdujlqdo	Hdwh
/ Rylla	//// L J 11	raajiqao oaw			//// 1911	144)1440	o dawii
′3	45/483	43 (			'3 ';/8	333 43 (	
45/483	79/583	48 (		′;/8	333 '67/8	333 48(	
79/583	'44 733</td <td>58 (</td> <td></td> <td>167/8</td> <td>333 '9<!--9</td--><td>9:8 58(</td><td></td></td>	58 (		167/8	333 '9 9</td <td>9:8 58(</td> <td></td>	9:8 58(	
44 733</td <td>'4&lt;6/683</td> <td>5;(</td> <td></td> <td>19<!--9</td--><td>9:8 '439/4</td><td>183 5;(</td><td></td></td>	'4<6/683	5;(		19 9</td <td>9:8 '439/4</td> <td>183 5;(</td> <td></td>	9:8 '439/4	183 5;(	
'4<6/683	'6: 483</td <td>66 (</td> <td></td> <td>1439/4</td> <td>483 '4;<!--8</td--><td>3:8 66(</td><td></td></td>	66 (		1439/4	483 '4; 8</td <td>3:8 66(</td> <td></td>	3:8 66(	
′6: 483</td <td>dqg ryhı</td> <td>ı 68(</td> <td></td> <td>′4;<!--8</td--><td>3:8 dqg r</td><td>ryhu 68 (</td><td></td></td>	dqg ryhı	ı 68(		′4; 8</td <td>3:8 dqg r</td> <td>ryhu 68 (</td> <td></td>	3:8 dqg r	ryhu 68 (	
wdqgdug Ghgxf	wl			Vwdqgdug G	hgxfwlrq iru	Ghshqg	
	Vwdqgdug	Eolqg2Hoghu	: 	Juhdwhu ri	′<83 ru vxp	ri '633 dqg	lqgl
Vlqjc Pduulhq ilc	′8/;33	14/783	3	hduqhg lqf			
mrlqwo Khdq r:	44/933	4/483	3	Shuvrqdo H	{hpswlrq	′6	/:33
Krxvhkrog	′;/833	14/783	3				
Pduulhg il				Wkuhvkrog	iru Uhixqgdec	oh.	
vhsdudwho	′8/;33	'4/483	3	Wd{ Fuhglw		′ 6	/333
lolqj Wkuhvk							
			Qxpehu	ri Eolqg 2 1	Hoghuo  H{hps	wlrqv	
		3		4	5	6	7
lqjoh		833</td <td>3 43/</td> <td>&lt;83 45/</td> <td>733</td> <td></td> <td></td>	3 43/	<83 45/	733		

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 5344045/ grzqordghg Mdqxdu| 47/ 5344 iurp kwws=22zzzlluv1jry2sxe2luv0gurs2us0

53/483

54/633

55/783

56/933

4</333

Vlqjc

Khdg ri Krxvhkr

Pduulhg ilolqj

Li | rxu ilolqj vwdwxv lv Vlqjoh

Exw qr

Wd{deoh Lqfrph

## 5343 Lqglylgxdo Lqfrph Wd{ Udwhv/ Vwdqgdug Gł Shuvrqdo H{hpswlrqv/ dqg Ilolqj Wkı

Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo|

H{hpswlrqv

55/33

6

56/43

Exw qr

Wd{deoh Lqfrph

/ Ryhu	//// ryh	Pdujlqdo Udwh	/ Ryhu	//// ryh	Pdujlqdo Udwh
′3	′;/6:	43 (	′ 3	'49/:8	43 (
′;/6:	'67/33	48 (	'49/:8	19;/33	48 (
′67/33	';5/73	58 (	19;/33	46:/63	58 (
';5/73	'4:4/;8	5;(	′46:/63	153 58</td <td>5;(</td>	5;(
4:4/;8	′6:6/98	66 (	′53 58</td <td>16:6/98</td> <td>66 (</td>	16:6/98	66 (
'6:6/98	dqg ryh	68 (	<u>'6:6/98</u>	dqg ryl	68 (
		hdg ri Krxvhkrog			duulhg ilolqj vhsdudwh
Wd{deoh			Wd{deoh		
	Exw qr		,	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh	/ Ryhu	//// ryh	Pdujlqdo Udwh
′3	'44/<8	43 (	′3	′;/6:	43 (
′44/<8	78/88	48 (	′;/6:	′67/33	48 (
78/88	44:/98	58 (	'67/33	19;/98	58 (
'44:/98	14<3/88	5;(	19;/98	437/95	5;(
'4<3/88	16:6/98	66 (	437/95	'4;9/;5	66 (
'6:6/98	dqg ryh	68 (	4;9/;5	dqg ryh	68 (
Wwdqgdug Ghgxf	wl			wlrq iru Ghs	hqg
	Vwdqgdu	Eolqg2Hogh	Juhdwhu ri '<8	3 ru vxp ri	'633 dqg lqglylgxdo*v
Vlqjc	18/:33	4/733	hduqhg lqfrph		
Pduulhg il					
mrlqv	44/733	4/433	Shuvrqdo H{hps	wlrq	′6/98
Khdg r					
Krxvhkro	′;/733	4/733			
KINVIKIO	-	•	Wkuhvkrog iru	Uhixaadeoh	
Pduulhg il					

 $\label{thm:continuous} $$ Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 533<083/ grzqordghg Rfwrehu 54/ 533< iurp kwws=22zzz1luv1jry2sxe2luv0gurs2us0$ 

43/:8

46/78

4</;3

Qxpehu ri Eolqg 2 Hoghuo

5

45/48

47/;8

53/<3

Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@8;3 iru fklog0uk

</68

45/38

4;/:3

Li	rxu	ilolqj	vwdwxv	lv	Vlqjoh

DI IIIG IIOIQ	, viianiiv iv	719,011	
Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	′;/68	43 (	
′;/68	′66/<8	48(	
′66/<8	';5/58	58(	
';5/58	4:4/88	5;(	
4:4/88	'6:5/<8	66(	
'6:5/<8	dqg ryh	68 (	

<u>Li | rxu ilolqj vwdwxv lv Pduulhg il</u>olqj mrlqwo |

Wd{deoh	. Lqfrph	
	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	'49/:3	43 (
'49/:3	′9:/<3	48 (
′9:/<3	'46:/38	58 (
'46:/38	153;/;8	5;(
153;/;8	′6:5/<8	66 (
'6:5/<8	dqg ryh	68 (

Li | rxu ilolgj vwdwxv lv Khdg ri Krxvhkrog

DI   ING IIOI	1) ***a****	rarag II i	CT 25 V 11.	
Wd{deo	Wd{deoh Lqfrph			
	Exw qr			
/ Ryhu	//// ryh	Pdujlqdo	Udwh	
′ 3	′44/<8	43 (		
′44/<8	78/83	48(		
78/83	'44:/78	58(		
44:/78	'4<3/53	5;(		
4<3/53	'6:5/<8	66(		
'6:5/<8	dqg ryh	68(		

Li |rxu ilolqj vwdwxv lv Pdu

vhsdudwho			
Wd{dec	h Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	′;/68	43 (	
′;/68	′66/<8	48 (	
′66/<8	19;/85	58 (	
19;/85	437/75	5;(	
437/75	'4;9/7:	66 (	
′4;9/7:	dqg ryh	68 (	

#### Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg il:	18/:33	14/733
mrlqwo	44/733	'4/433
Khdg r:		
Krxvhkrog	′;/683	'4/733
Pduulhg ila		
vhsdudwho	18/:33	4/433

Skdvhrxw ri Lwhpl}hg Ghgxt

Pdui	ılhg	ilolqj	vhsdudwho	';6/733
Doo	rwkl			499/;33

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '<83 ru vxp ri '633 dqg lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo H{hpswl

6/98

Wkuhvkrog iru Uhixqgdeoh Fklog Wd

#### Skdvhrxw ri Shuvrqdo H{hps

BRAVIII BIIAVI QAO II (II pe				
	DJL			
	Ehjlqqlqj	Pd{lpxp		
	Skdvhrxw	Skdvhrxw		
Vlqjc	1499/;33	15; 633</td		
Pduulhg il				
mrlqwc	7583/533	'6:5/:33		
Khdg r:				
Krxvhkrog	153;/833	664/333		
Pduulhg il				
vhsdudwho	458/433	'4;9/683		

## Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hoghuo	H{hpswlrqv	
	3	4	5	6	7
Vlqjc	68</td <td>43/:8</td> <td>45/48</td> <td></td> <td></td>	43/:8	45/48		
Khdg ri Krxvhkr	45/33	46/73	47/;3		
Pduulhg ilolqj 1	4;/:3	4 ;3</td <td>53/&lt;3</td> <td>55/33</td> <td>56/43</td>	53/<3	55/33	56/43

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 533;099/ grzqordghg Qryhpehu 6/ 533; iurp kwws=22zzzlluv1jry2sxe2luv0gurs2us03;0991sgi> K1U1 4/ Dphulfdq Uhfryhu| dqg Uhlc Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhu1ruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhu1ruj2wd{idfwv2glvsod|didfw1fipBGrfLG@8;3 iru fklog0uh

Li	rxu	ilolqj	vwdwxv	lv	Vlqjoh

		1.7	
Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	′;/35	43 (	
′;/35	165/88	48 (	
165/88	':;/;8	58 (	
':;/;8	1497/88	5;(	
'497/88	'68:/:3	66 (	
'68:/:3	dqg ryh	68 (	

<u>Li | rxu ilolqj vwdwxv lv Pduulhg il</u>olqj mrlqwo |

Wd{deoh	-		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	149/38	43 (	
49/38	198/43	48 (	
198/43	464/78	58 (	
1464/78	1533/63	5;(	
1533/63	'68:/:3	66 (	
'68:/:3	dqg ryh	68 (	

Li | rxu ilolgj vwdwxv lv Khdg ri Krxvhkrog

DI   ING IIOIQ	J WWWIN IV	rarag II raravin
Wd{deoh		
	Exw qr	•
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	'44/78	43 (
44/78	176/98	48 (
76/98	445/98	58 (
445/98	4;5/73	5;(
4;5/73	'68:/:3	66 (
'68:/:3	dqg ryh	68 (

Li |rxu ilolqj vwdwxv lv Pdu

vhsdudwho					
Wd{deoh	Lqfrph				
	Exw qr	='			
/ Ryhu	//// ryh	Pdujlqdo	Udwh		
′3	′;/35	43 (			
′;/35	165/88	48 (			
165/88	198/:5	58 (			
198/:5	433/48	5;(			
433/48	'4:;/;8	66 (			

Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg il:	18/783	′4/683
mrlqwo	'43/<33	'4/383
Khdg r:		
Krxvhkrog	′;/333	'4/683
Pduulhg il		
vhsdudwho	18/783	'4/383

Skdvhrxw ri Lwhpl}hg Ghgx1

4:;/;8

Pduı	ılhg	ilolqj	vhsdudwho	′: <:8</th
Doo	rwkl			48 <83</td

dqg ryh

68 (

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '<33 ru vxp ri '633 dqg lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo  $H\{hpswl$ 

6/83

Wkuhvkrog iru Uhixqgdeoh Fklog Wd

Skdvhrxw ri Shuvrqdo H{hps

	DJL		
_	Ehjlqqlqj	Pd{lpxp	
	Skdvhrxw	Skdvhrxw	
Vlqjc	48 <83</td <td>15;5/783</td>	15;5/783	
Pduulhg il			
mrlqwc	156 <83</td <td>1695/783</td>	1695/783	
Khdg r:			
Krxvhkrog	'4< <83</td <td>655/783</td>	655/783	
Pduulhg il			
vhsdudwho	44 <:8</td <td>14;4/558</td>	14;4/558	

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hoghuo	H{hpswlrqv	
	3	4	5	6	7
Vlqjc	;/<8	43/63	44/98		
Khdg ri Krxvhkr	44/83	45/;8	47/53		
Pduulhg ilolqj ı	4:/<3	4;/<8	53/33	54/38	55/43

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 533:099/ grzqordghg Qryhpehu 4/ 533:iurp kwws=22zzzlluv1jry2sxe2luv0gurs2us

 $\label{lem:qrwh=} \mbox{ Qrwh= Vhh kwws=22zzz1wd} \\ \mbox{ srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrfLG@86< irukwws=22zzz1wd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrfLG@8;3 irufklog0uh} }$ 

Li  rxu ilolq	j vwdwxv lv	Vlqjoh	
Wd{deoh	Lqfrph		
	Exw qr	•	
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	':/;5	43 (	
':/;5	'64/;8	48(	
'64/;8	'::/43	58(	

Li  rxu ilol	qj vwdwxv l	v Pduulhg	<u>il</u> olqj	mrlqwo
Wd{deoh	ı Lqfrph			
	Exw qr			
/ Ryhu	//// ryh	Pdujlqdo	Udwh	
			<u>-</u>	
′ 3	'48/98	43 (		
'48/98	196/:3	48 (		
196/:3	45;/83	58 (		
45;/83	'4<8/;8	5;(		
'4<8/;8	'67 :3</td <td>66 (</td> <td></td> <td></td>	66 (		
′67 :3</td <td>dqg ryh</td> <td>68 (</td> <td></td> <td></td>	dqg ryh	68 (		

Li	rx11	ilolai	vwdwxv	1 17	Khda	ri	Krxvhkrog

493/;8

′67</:3

dqg ryh

5;(

66(

DI  ING IIOI	1) ***a****	rarag II raravina
Wd{deo	h Lqfrph	
	Exw qr	•
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	44/53	43 (
44/53	75/98	48 (
75/98	443/43	58 (
443/43	'4:;/68	5;(
4:;/68	′67 :3</td <td>66 (</td>	66 (
′67 :3</td <td>dqg ryh</td> <td>68 (</td>	dqg ryh	68 (
		•

Li  rxu ilolqj vwdwxv lv Pdu				
vhsdudwho				
Wd{deoh	Lqfrph			
	Exw qr			
/ Ryhu	//// ryh	Pdujlqdo	Udwh	
′ 3	′:/;5	43 (		
′:/;5	'64/;8	48 (		
'64/;8	197/58	58 (		
197/58	′<:/<5	5;(		
′<:/<5	4:7/;8	66 (		
4:7/;8	dqg ryh	68 (		

#### Vwdqgdug Ghgxfwl

'::/43

493/;8

'67</:3

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg il:	18/683	14/633
mrlqwo	43/:33	'4/383
Khdg r:		
Krxvhkrog	':/;83	'4/633
Pduulhg il		
vhsdudwho	18/683	'4/383

Skdvhrxw ri Lwhpl}hg Ghgxt	
Pduulhg ilolqj vhsdudwho	':;/533
Doo rwkl	489/733

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri ';83 ru vxp ri '633 dqg lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo H{hpswl

′6/73

Wkuhvkrog iru Uhixqgdeoh Fklog Wd '44/:8

#### Skdvhrxw ri Shuvrqdo H{hps

	DJL				
_	Ehjlqqlqj	Pd{lpxp			
	Skdvhrxw	Skdvhrxw			
Vlqjc	1489/733	′5:;/<33			
Pduulhg il					
mrlqwc	1567/933	'68:/433			
Khdg r:					
Krxvhkrog	'4<8/833	'64;/333			
Pduulhg il					
vhsdudwho	44:/633	'4:;/883			

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hoghu	o  H{hpswlrqv	
	3	4	5	6	7
Vlqjc	;/:8	43/38	44/68		
Khdg ri Krxvhkr	44/58	45/88	46/;8		
Pduulhg ilolqj 1	4:/83	4;/88	4 93</td <td>53/98</td> <td>54/:3</td>	53/98	54/:3

 $\begin{tabular}{ll} $$ Vrxufh= Mdphv \rxqj/ $Lqiodwlrq Dgmxvwphqwv Diihfwlqj Lqglylgxdo Wd{sd|huv lq 533:/$ Wd{ Qrwhv pdjd}lqh/ Rfwrehu <. \end{tabular}$ 

Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrflg@8;3 iru fklog0uk

Li	rxu	ilolqj	vwdwxv	lv	Vlqjoh
----	-----	--------	--------	----	--------

Wd{deoh	ı Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	':/88	43 (	
′:/88	'63/98	48 (	
'63/98	':7/53	58 (	
′:7/53	'487/;3	5;(	
487/;3	'669/88	66 (	
'669/88	dqg ryh	68 (	

## Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo|

Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	48/43	43 (	
48/43	194/63	48 (	
194/63	456/:3	58(	
'456/:3	'4;;/78	5;(	
'4;;/78	'669/88	66(	
669/88	dga ryh	68 (	

Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	'43/:8	43 (	
43/:8	74/38	48 (	
74/38	439/33	58 (	
439/33	4:4/98	5;(	
4:4/98	1669/88	66 (	
'669/88	dqg ryh	68 (	

Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

TIDGGGGIIIO		
Wd{deol	n Lqfrph	
	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	′:/88	43 (
':/88	163/98	48 (
'63/98	194/;8	58 (
194/;8	′<7/55	5;(
′<7/55	49;/5:	66 (
49;/5:	dqg ryh	68 (

Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg ila	18/483	4/583
mrlqwo	43/633	'4/333
Khdg r	, /002	14/503
Krxvhkrog Pduulhg ila	':/883	′4/583
vhsdudwho	18/483	'4/333

Skdvhrxw ri Lwhpl}hg Ghgx:

Pduulhg	ilolqj	vhsdudwho	':8/583
Doo rwkl			483/831

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv

Juhdwhu ri ';83 ru vxp ri '€
lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo H{hpswl

16/63

Wkuhvkrog iru Uhixqgdeoh Fklog Wd '44/63

Skdvhrxw ri Shuvrqdo H{hps

	_ , _				
	DJL				
	Ehjlqqlqj	Pd{lpxp			
	Skdvhrxw	Skdvhrxw			
Vlqjc Pduulhg ilc	1483/833	15:6/333			
mrlqwo Khdg r:	/558/:83	′67;/583			
Krxvhkrog Pduulhg il	'4;;/483	'643/983			
vhsdudwho	'445/;:8	<u>'4:7/45</u> 8			

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hoghu	o  H{h	
	3	4	5	6	7
Vlqjc	;/78	:3</td <td>43/&lt;8</td> <td></td> <td></td>	43/<8		
Khdg ri Krxvhkr	43/;8	45/43	46/68		
Pduulhg ilolqj r	49/<3	4:/<3	4;/<3	4 <3</td <td>53/&lt;3</td>	53/<3

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo Uhyhqxh Vhuylfh Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrflg@8;3 iru fklog0uh

Li	rxu	ilolqj	vwdwxv	lv	Vlqjoh	
----	-----	--------	--------	----	--------	--

	Wd{deoh			
		Exw qr		
	/ Ryhu	//// ryh	Pdujlqdo	Udwh
Ī				
	′3	′:/63	43 (	
	′:/63	′5 :3</td <td>48 (</td> <td></td>	48 (	
	′5 :3</td <td>′:4/&lt;8</td> <td>58 (</td> <td></td>	′:4/<8	58 (	
	':4/<8	483/48	5;(	
	483/48	1659/78	66 (	
	659/78	dqg ryh	68 (	

## Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo| Wd{deoh Lqfrph

Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	147/93	43 (	
47/93	′8 73</td <td>48 (</td> <td></td>	48 (	
′8 73</td <td>′44<!--<8</td--><td>58(</td><td></td></td>	′44 <8</td <td>58(</td> <td></td>	58(	
′44 <8</td <td>'4;5/;3</td> <td>5;(</td> <td></td>	'4;5/;3	5;(	
4;5/;3	1659/78	66(	
1659/78	dqg ryh	68(	

Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

		- J	
Wd{deol	Wd{deoh Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	43/78	43 (	
43/78	′6 ;3</td <td>48 (</td> <td></td>	48 (	
′6 ;3</td <td>435/;3</td> <td>58 (</td> <td></td>	435/;3	58 (	
435/;3	1499/78	5;(	
1499/78	1659/78	66 (	
'659/78	dqg ryh	68 (	

Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

Wd{de		
	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh
′3	′:/63	43 (
′:/63	15 :3</td <td>48 (</td>	48 (
15 :3</td <td>′8<!--<:</td--><td>58 (</td></td>	′8 <:</td <td>58 (</td>	58 (
′8 <:</td <td>′&lt;4/73</td> <td>5;(</td>	′<4/73	5;(
'<4/73	496/55	66 (
496/55	dqg ryh	68 (

#### Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc	18/333	4/583
Pduulhg ila		
mrlqwo	43/333	'4/333
Khdg r		
Krxvhkrog	':/633	4/583
Pduulhg ila		
vhsdudwho	18/333	'4/333

Skdvhrxw ri Lwhpl}hg Ghgx:

Pduulhg	ilolqj	vhsdudwho	':5/<:8
Doo rwkl			478/<8

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv

Juhdwhu ri ';33 ru vxp ri '5
lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo H{hpswl

6/53

Wkuhvkrog iru Uhixqgdeoh Fklog Wd '44/33

#### Skdvhrxw ri Shuvrqdo H{hps

	1 (1	
	DJL	
	Ehjlqqlqj	Pd{lpxp
	Skdvhrxw	Skdvhrxw
Vlqjc Pduulhg ila	478/<83	159;/783
mrlqwo Khdg r:	/54;/<83	'674/783
Krxvhkrog Pduulhg il	4;5/783	′637/<83
vhsdudwho	43 7:8</td <td>4:3/:58</td>	4:3/:58

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hogh	uo  H{h	
	3	4	5	6	7
Vlqjc	;/53	78</td <td>43/:3</td> <td></td> <td></td>	43/:3		
Khdg ri Krxvhkr	43/83	44/:8	46/33		
Pduulhg ilolqj r	49/73	4:/73	4;/73	4 73</td <td>53/73</td>	53/73

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo Uhyhqxh Vhuylfh Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrflg@8;3 iru fklog0uh

Li	rxu	ilolqj	vwdwxv	lv	Vlqjoh

Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	':/48	43 (	
':/48	15 38</td <td>48 (</td> <td></td>	48 (	
15 38</td <td>':3/68</td> <td>58 (</td> <td></td>	':3/68	58 (	
':3/68	479/:8	5;(	
479/:8	'64 43</td <td>66 (</td> <td></td>	66 (	
'64 43</td <td>dqg ryh</td> <td>68 (</td> <td></td>	dqg ryh	68 (	

## Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

Wd{deoh	Wd{deoh Lqfrph			
	Exw qr			
/ Ryhu	//// ryh	Pdujlqdo Udwh		
		_		
13	47/63	43 (		
47/63	18;/43	48 (		
18;/43	44:/58	58 (		
44:/58	'4:;/93	5;(		
4:;/93	'64 43</td <td>66 (</td>	66 (		
'64 43</td <td>dqg ryh</td> <td>68 (</td>	dqg ryh	68 (		

Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Lqfrph		
Exw qr		
//// ryh	Pdujlqdo	Udwh
43/53	43 (	
′6;/<3	48 (	
433/83	58 (	
495/:3	5;(	
164 43</td <td>66 (</td> <td></td>	66 (	
dqg ryh	68 (	
	//// ryh  '43/53 '6;/<3 '433/83 '495/:3 '64 43</td <td>Exw qr //// ryh Pdujlqdo '43/53 43( '6;/&lt;3 48( '433/83 58( '495/:3 5;( '64<!--43 66(</td--></td>	Exw qr //// ryh Pdujlqdo '43/53 43( '6;/<3 48( '433/83 58( '495/:3 5;( '64 43 66(</td

Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

	Wd{deoh	Lqfrph		
		Exw qr		
_	/ Ryhu	//// ryh	Pdujlqdo	Udwh
	′3	':/48	43 (	
	':/48	15 38</td <td>48 (</td> <td></td>	48 (	
	′5 38</td <td>18;/95</td> <td>58(</td> <td></td>	18;/95	58(	
	18;/95	′; 65</td <td>5;(</td> <td></td>	5;(	
	′; 65</td <td>'48<!--88</td--><td>66(</td><td></td></td>	'48 88</td <td>66(</td> <td></td>	66(	
	48 88</td <td>dqg ryh</td> <td>68(</td> <td></td>	dqg ryh	68(	

Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg ila	77/;83	′4/533
mrlqwo	′ :33</td <td>′ &lt;83</td>	′ <83
Khdg r		
Krxvhkrog	':/483	'4/533
Pduulhg ila		
vhsdudwho	77/;83	′<83

Skdvhrxw ri Lwhpl}hg Ghgx:

Pduu	lhg	ilolqj	vhsdudwho	':4/683
Doo	rwkl			475/:31

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv

Juhdwhu ri ';33 ru vxp ri 'E
lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo H{hpswl

6/43

Wkuhvkrog iru Uhixqgdeoh Fklog Wd '43/:8

Skdvhrxw ri Shuvrqdo H{hps

	1 (1			
	DJL			
	Ehjlqqlqj	Pd{lpxp		
	Skdvhrxw	Skdvhrxw		
Vlqjc Pduulhg ila	475/:33	1598/533		
mrlqwo Khdg r:	/547/383	1669/883		
Krxvhkrog Pduulhg il	4:;/683	633/;83		
vhsdudwho	'43:/358	149;/5:8		

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hog	huo  H{h	
	3	4	5	6	7
Vlqjc	:/<8	48</td <td>43/68</td> <td></td> <td></td>	43/68		
Khdg ri Krxvhkr	43/58	44/78	45/98		
Pduulhg ilolqj t	48/<3	49/;8	4:/;3	4;/:8	4 :3</td

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo Uhyhqxh Vhuylfh Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrflg@8;3 iru fklog0uh

Li lı	:xu i	.lolai	vwdwxv	lv	Vlaioh
-------	-------	--------	--------	----	--------

Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	′:/33	43 (	
′:/33	15;/73	48 (	
15;/73	19;/;3	58 (	
19;/;3	476/83	5;(	
476/83	'644/<8	66 (	
 ′644/<8	dqg ryh	68 (	

## Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

	Wd{deoh	Lqfrph		
,		Exw qr	•	
	/ Ryhu	//// ryh	Pdujlqdo	Udwh
	′3	47/33	43 (	
	47/33	189/;3	48 (	
	189/;3	1447/98	58 (	
	447/98	4:7/:3	5;(	
	4:7/:3	'644/<8	66 (	
	'644/<8	dqg ryh	68 (	

Li |rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	43/33	43 (	
43/33	16;/38	48 (	
'6;/38	′<;/58	58 (	
′<;/58	'48 43</td <td>5;(</td> <td></td>	5;(	
'48 43</td <td>'644/&lt;8</td> <td>66 (</td> <td></td>	'644/<8	66 (	
′644/<8	dqg ryh	68 (	

Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	<u>Ud</u> wh
′ 3	′:/33	43 (	
′:/33	15;/73	48 (	
15;/73	18:/65	58(	
18:/65	′;:/68	5;(	
';:/68	′488/<:	66 (	
'488/<:	dqg ryh	68 (	

Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjoh Pduulhg ila	77/:83	'4/483
mrlqwo	′ 833</td <td>'&lt;83</td>	'<83
Khdg r		
Krxvhkrog	':/333	4/483
Pduulhg ila		
vhsdudwho	77/:83	′<83

Skdvhrxw ri Lwhpl}hg Ghgx:

Pduulhg	ilolqj	vhsdudwho	19 :83</th
Doo rwkh	nuv		'46 833</td

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv

Juhdwhu ri ':83 ru vxp ri '5

lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo  $H\{hpswl$ 

6/38

Wkuhvkrog iru Uhixqgdeoh Fklog Wd '43/83

Skdvhrxw ri Shuvrqdo H{hps

DHG THEH E	naviquo ninpe	
	DJL	
_	Ehjlqqlqj	Pd{lpxp
	Skdvhrxw	Skdvhrxw
Vlqjc Pduulhg il	46 833</td <td>1595/333</td>	1595/333
mrlqwo Khdg r:	/ 53 583</td <td>′664/:83</td>	′664/:83
Krxvhkrog Pduulhg il	4:7/733	15<9/<33
vhsdudwho	437/958	1498/;:8

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hogl	nuo  H{h	
	3	4	5	6	7
Vlqjc	:/;3	;/<8	43/43		
Khdg ri Krxvhkr	43/38	44/53	45/68		
Pduulhg ilolqj 1	48/93	49/88	4:/83	4;/78	4 73</td

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrflg@8;3 iru fklog0uh

1.7	rxu	ו ו ו ו מ ו	vwdwxv	1 77	VIGTOR

HI TRU HICHY	TWGW2EV IV	viqjon	
Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	19/33	4313 (	
19/33	15:/<8	4813 (	
′5:/<8	19:/:3	5:13(	
19:/:3	474/58	6313(	
474/58	'63:/38	6813 (	
'63:/38	dqg ryh	6;19(	

## Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

Wd{deoh	Lqfrph	_	
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo Udw	h
′3	45/33	4313 (	
45/33	79/:3	4813 (	
79/:3	445/;8	5:13(	
445/;8	4:4/<8	6313 (	
4:4/<8	'63:/38	6813 (	
′63:/38	dqg ryh	6;19(	

Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

22   III 0	±±0±9,	1 11 04 11 12 1	T Turu		
W	d{deoh	Lqfrph			
		Exw qr			
/ Ryh	u	//// rył	n Pduj	lqdo	Udwh
	′3	43/	33 4	313 (	
443	3/33	′6:/	78 4	813(	
16:	/78	′<9/	:3 5	:13(	
′<9	)/:3	1489/	93 6	313 (	
489	9/93	′63:/	38 6	813(	
163:	/38	dqg	ryh 6	;19(	

Li |rxu ilolqj vwdwxv lv Pdu

1	13		
vhsdudwho			
Wd{deoh	Lqfrph		
	Exw qr	-	
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	19/33	4313 (	
19/33	156/68	4813 (	
156/68	189/75	5:13(	
189/75	′;8/<:	6313(	
′;8/<:	1486/85	6813(	
1106/05	daa ruk	6.10/	

Vwdggdug Ghgxfwl

aqjaag 011j111		
	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg ila	77/:33	4/483
mrlqwo	′:/;83	′<33
Khdg r:		
Krxvhkrog	19/<33	'4/483
Pduulhg il		
vhsdudwho	′6/<58	′<33

Skdvhrxw ri Lwhpl}hg Ghgx:

Pdui	ılhg	ilolqj	vhsdudwho	9;/983
Doo	rwkl			46:/631

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv

Juhdwhu ri ':83 ru vxp ri '5
lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo h $\{hpswl$ 

6/33

Wkuhvkrog iru Uhixqgdeoh Fklog Wd '43/68

#### Skdvhrxw ri Shuvrqdo H{hps

naviquo ninpe	
DJL	
Ehjlqqlqj	Pd{lpxp
Skdvhrxw	Skdvhrxw
46:/631	158 ;33</td
539/333	65;/833
4:4/983	15<7/483
436/333	<u>'497/58</u> 3
	DJL Ehjlqqlqj Skdvhrxw '46:/63:   '539/333 '4:4/983

Ilolqj Wkuhvk

15					
		Qxpehu ri Ed	olqg 2 Hoghu	o  H{h	
	3	4	5	6	7
Vlqjc	:/:3	;/;8	43/33		
Khdg ri Krxvhkr	<3</td <td>44/38</td> <td>45/53</td> <td></td> <td></td>	44/38	45/53		
Pduulhq ilolqj 1	46/;8	47/:8	48/98	49/88	4:/78

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U
Qrwh= Vhh kwws=22zzz1wd{srolf|fhqwhu1ruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< iru
kwws=22zzz1wd{srolf|fhqwhu1ruj2wd{idfwv2glvsod|didfw1fipBGrflg@8;3 iru fklog0uh</pre>

Li	rxu ilolq	j vwdwxv lv	Vlqjoh	
	Wd{deoh	Lqfrph		
		Exw qr	•	
/	Ryhu	//// ryh	Pdujlqdo	<u>Ud</u> wh
	′3	15:/38	4813 (	
	15 /20	100/00	F 10/	

	nvw di		
/ Ryhu	//// ryh	Pdujlqdo	Udwl
′3	15:/38	4813 (	
15:/38	198/88	5:18(	
198/88	'469/:8	6318(	
469/:8	15<:/68	6818(	
15<:/68	dqg ryh	6<14(	

Li	rxu	ilolqj	vwdwxv	lv	Khdg	ri	<u>Krx</u> vhkrog
	TaT	doob :	Tafanh				

Wd{deoh	Wd{deoh Lqfrph				
	Exw qr				
/ Ryhu	//// ryh	Pdujlqdo Udwh			
′3	169/58	4813 (			
'69/58	′<6/98	5:18(			
′<6/98	484/98	6318(			
484/98	′5<:/68	6818(			
<b>′</b> 5<:/68	dqg ryh	6<14(			

Vwdqgdug Ghgxfwl

	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg il:	7/883	'4/433
mrlqwo	':/933	′<33
Khdg r		
Krxvhkro Pduulhg il	19/983	4/433
vhsdudwh	′6/;33	′<33

Shuvrqdo H{hpswl

Skdvhrxw ri Shuvrqdo H{hps

DJL	
Ehjlqqlqj	Pd{lpxp
 Skdvhrx	Skdvhrx
 1155/01	/-

**'**588/783 Vlqjc 465/<81 Pduulhg il mrlqv 4<</783 654/<83 Khdg r Krxvhkro 499/531 15;;/:31 Pduulhg il vhsdudwh '<</:58 493/<:8 <u>Li | rxu ilolqj vwdwxv lv Pduulhg i</u>lolqj mrlqwo |

Wd{deoh				
	Exw	qr	-	
/ Ryhu	////	ryh	Pdujlqdo	Udwh
′3	/ 5	78/53	4813 (	
78/53	443	3 58</td <td>5:18(</td> <td></td>	5:18(	
43 58</td <td>449</td> <td>99/83</td> <td>6318(</td> <td></td>	449	99/83	6318(	
1499/83	15	<:/68	6818(	
′5<:/68	do	g ryh	6<14(	

Li |rxu ilolqj vwdwxv lv Pdu

vhsdudwho

_				
_	Wd{deoh			
Ī		Exw qr	_	
	/ Ryhu	//// ryh	Pdujlqdo	Udwh
	′ 3	155/93	4813 (	
	155/93	187/95	5:18(	
	187/95	';6/58	6318(	
	';6/58	47;/9:	6818(	
	47;/9:	dqg ryh	6<14(	

Skdvhrxw ri Lwhpl}hg Ghgx:

Pduulhg	ilolqj	vhsdudwho	199/7:8
Doo rwkl			465/<83

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri ':83 ru vxp ri '5 lqglylgxdo\*v hduqhg lqfrph

Wkuhvkrog iru Uhixqgdeoh Fklog Wd 143/33

Ι	101	αi	Wkuhvł
_	101	<b>M</b> .J	WILCUIT VI

		Qxpehu ri	Eolqg 2 Hoghu	o  H{h	
	3	4	5	6	7
Vlqjc	:/78	;/88	98</td <td></td> <td></td>		
Khdg ri Krxvhkr	88</td <td>43/98</td> <td>44/:8</td> <td></td> <td></td>	43/98	44/:8		
Pduulhg ilolqj ı	46/73	47/63	48/53	49/43	4:/33

15/<3

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzz1wd{srolf|fhqwhu1ruj2wd{idfwv2glvsod|didfw1fipBGrflg@8;3 iru fklog0uh

Li	rxu	ilolqj	vwdwxv	lv	Vlqjoh	
----	-----	--------	--------	----	--------	--

Wd{deoh		
	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	159/58	4813 (
159/58	196/88	5;13(
196/88	1465/93	6413 (
465/93	15;;/68	6913(
75;;/68	dqg ryh	6<19(

## Li |rxu ilolgj vwdwxv lv Khdg ri Krxvhkrog

LI JIXU IIOIQJ	VWUWXV IV	Kiiug II KIXVIIKI
Wd{deoh		
	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	'68/48	4813 (
'68/48	′<3/;3	5;13(
′<3/;3	47:/38	6413 (
47:/38	15;;/68	6913 (
′5;;/68	dqg ryh	6<19(

#### Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg ila	77/733	4/433
mrlqwo	':/683	′;83
Khdg r		
Krxvhkrog	19/783	'4/433
Pduulhg il		
vhsdudwho	'6/9:8	′;83

#### Skdvhrxw ri Shuvrqdo H{hps

	DJL		
	Ehjlqqlqj	Pd{lpxp	
	Skdvhrxw	Skdvhrxw	
Vlqjc	45;/<83	1584/783	
Pduulhg il			
mrlqwo	'4<6/733	'648/<33	
Khdg r			
Krxvhkrog	494/483	15;6/983	
Pduulhg il			
vhsdudwho	′<9/:33	48:/<83	
	197.00		

## Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	76/;8	4813 (	
76/;8	438/<8	5;13(	
438/<8	1494/78	6413 (	
494/78	15;;/68	6913(	
15;;/68	dgg ryh	6<19(	

## Li |rxu ilolqj vwdwxv lv Pdu

vhsdudwho

Wd{deoh	Wd{deoh Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	154/<5	4813 (	
154/<5	′85/<:	5;13(	
′85/<:	';3/:5	6413 (	
';3/:5	477/4:	6913(	
477/4:	dqg ryh	6<19(	

## Skdvhrxw ri Lwhpl}hg Ghgx:

Pduulhg	ilolqj	vhsdudwho	97/7:8
Doo rwkl			45;/<83

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv

Juhdwhu ri ':33 ru vxp ri '5
lqglylgxdo\*v hduqhg lqfrph

Shuvrqdo H{hpswl '5/;3

#### Ilolqj Wkuhvk

•		Qxpehu ri Ed	olqg 2 Hoghud	o  H{h	
	3	4	5	6	7
Vlqjc	:/53	;/63	73</td <td></td> <td></td>		
Khdg ri Krxvhkr	58</td <td>43/68</td> <td>44/78</td> <td></td> <td></td>	43/68	44/78		
Pduulhg ilolqj t	45/<8	46/;3	47/98	48/83	49/68

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrfLG@86< iru kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrflg@8;3 iru fklog0uh

Li	rxu	ilolai	vxwbwv	7 77	Vlajoh

_	1110 11019	* * * * * * * * * * * * * * * * * * *	119,5011	
	Wd{deoh	Lqfrph		
		Exw qr		
	/ Ryhu	//// ryh	Pdujlqdo	Udwh
	′ 3	158/:8	4813 (	
	158/:8	195/78	5;13(	
	195/78	463/58	6413 (	
	463/58	15;6/48	6913 (	
	15;6/48	dgg ryh	6<19(	

## Li |rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Wd{deol	Wd{deoh Lqfrph			
	Exw qr	•		
/ Ryhu	//// ryh	Pdujlqdo Udwh		
		_		
′ 3	′67/88	4813 (		
<b>′</b> 67/88	'; 48</td <td>5;13(</td>	5;13(		
'; 48</td <td>477/73</td> <td>6413 (</td>	477/73	6413 (		
477/73	15;6/48	6913 (		
5;6/48	dqg ryh	6<19(		

#### Vwdqgdug Ghgxfwl

	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg ilc	7/633	'4/383
mrlqwo	':/533	′;83
Khdg r:		
Krxvhkro	19/683	4/383
Pduulhg ila		
vhsdudwh	'6/933	′;83

#### Skdvhrxw ri Shuvrqdo H{hps

_	DJL	
_	Ehjlqqlqj	Pd{lpxp
	Skdvhrx	Skdvhrx
Vlqjc Pduulhg ilc	459/931	157 433</td
mrlqv Khdg r:	4; <81</td <td>'645/783</td>	'645/783
Krxvhkro Pduulhg ild	48;/631	15;3/;33
vhsdudwh	′ <7/<:8	489/558

## <u>Li | rxu ilolqj vwdwxv lv Pduulhq il</u>olqj mrlqwo |

Wd{deoh			
	Exw qr	-	
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	176/38	4813 (	
76/38	437/38	5;13(	
437/38	48;/88	6413 (	
48;/88	15;6/48	6913 (	
15;6/48	dqg ryh	6<19(	

## Li |rxu ilolqj vwdwxv lv Pdui vhsdudwho|

-	TIDGGGGTIIO			
	Wd{deoh	Lqfrph		
Ī		Exw qr	-	
	/ Ryhu	//// ryh	Pdujlqdo	<u>Ud</u> wh
Ī				
	′3	154/85	4813 (	
	154/85	185/35	5;13(	
	185/35	′: 5:</td <td>6413 (</td> <td></td>	6413 (	
	′: 5:</td <td>474/8:</td> <td>6913 (</td> <td></td>	474/8:	6913 (	
	474/8:	dqg ryh	6<19(	

## Skdvhrxw ri Lwhpl}hg Ghgxi

Pduı	ılhg	ilolqj	vhsdudwho	196/633
Doo	rwkl			459/931

## Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri ':33 ru vxp ri '5 lqglylgxdo\*v hduqhg lqfrph

#### Shuvrqdo H{hpswl

15/:8

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hoghu	o  H{h	
	3	4	5	6	7
Vlqjc	:/38	;/43	48</td <td></td> <td></td>		
Khdg ri Krxvhkr	43</td <td>43/48</td> <td>44/53</td> <td></td> <td></td>	43/48	44/53		
Pduulhg ilolqj 1	45/:3	46/88	47/73	48/58	49/43

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhu1ruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86<

Li  rxu ilolo	j vwdwxv lv	Vlqjoh	
Wd{deoh	. Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	158/68	4813 (	
158/68	194/73	5;13(	
194/73	45;/43	6413 (	
45;/43	15:;/78	6913(	
15:;/78	dgg ryh	6<19(	

Li  rxu ilol	qj vwdwxv lv	Pduulho	<u>i</u> lolqj	mrlqwo
Wd{deoh	Lqfrph			
	Exw qr			
/ Ryhu	//// ryh F	dujlqdo	Udwh	
13	75/68	4813 (		
75/68	435/63	5;13(		
435/63	488/<8	6413 (		
'488/<8	15:;/78	6913(		
15:;/78	dqg ryh	6<19(		

Li	rxu	ilolqj	vwdwxv	lv	Khdg	ri	Krxvhkrog
	Wo	d{deoh :	Lqfrph				

ı Lqfrph	
Exw qr	
//// ryh	Pdujlqdo Udwh
′66/<8	4813 (
';:/:3	5;13(
475/33	6413 (
15:;/78	6913(
dqg ryh	6<19(
	Exw qr //// ryh '66/<8 ';:/:3 '475/33 '5:;/78

Ll	rxu	11010	IJ	vwawxv	ΤΛ	Pau
vhs	dudwł	10				
	7.7.2	مامماء	т	a. £ la		

Wd{deoh	Wd{deoh Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	154/4:	4813 (	
154/4:	184/48	5;13(	
184/48	′::/<:	6413 (	
′::/<:	46 55</td <td>6913(</td> <td></td>	6913(	
46 55</td <td>dqg ryh</td> <td>6&lt;19(</td> <td></td>	dqg ryh	6<19(	

## Vwdqgdug Ghgxfwl

	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg ilc	7/583	4/383
mrlqwo	':/433	′;83
Khdg r:		
Krxvhkro Pduulhg ila	19/583	4/383
vhsdudwh	16/883	′;83

Skdvhrxw	ri Lw	hpl}hg Ghgx	1
Pduulhg	ilolqj	vhsdudwho	195/583

Doo rwkl			1457/83
Vwdqqduq	Ghqxfwlrq	iru	Ghshqghqwv

## Juhdwhu ri ':33 ru vxp ri '5 lqglylgxdo\*v hduqhg lqfrph

## Skdvhrxw ri Shuvrqdo H{hps

	DJL	
=	Ehjlqqlqj	Pd{lpxp
	Skdvhrx	Skdvhrx
Vlqjc Pduulhg ilc	457/833	157:/33
mrlqv Khdg r:	4;9/;31	<b>'</b> 63 633</td
Krxvhkro Pduulhg ile	1488/983	15:;/483
vhsdudwh	′<6/733	487/983

Shuvrqdo H{hpswl '5/:3

Ilolqj Wkuhvł

TIOTY WRUTT					
		Qxpehu ri E	olqg 2 Hoghu	o  H{h	
	3	4	5	6	7
Vlqjc	9/<8	;/33	38</td <td></td> <td><u> </u></td>		<u> </u>
Khdg ri Krxvhkr	;/<8	43/33	44/38		
Pduulhg ilolqj 1	45/83	46/68	47/53	48/38	48/<3

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< :

Li	rxu	ilolai	vxwbwv	7 77	Vlajoh

HI THU HICHY	TWGWILT IT	V = Q J O = 1	
Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	157/98	4813 (	
157/98	′8 :8</td <td>5;13(</td> <td></td>	5;13(	
′8 :8</td <td>457/98</td> <td>6413 (</td> <td></td>	457/98	6413 (	
457/98	15:4/38	6913 (	
15:4/38	dqg ryh	6<19(	

Wd{deoh	Lqfrph	
	Exw qr	•
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	74/53	4813 (
′74/53	′< 93</td <td>5;13(</td>	5;13(
'< 93</td <td>484/:8</td> <td>6413 (</td>	484/:8	6413 (
'484/:8	15:4/38	6913 (
15:4/38	dqg ryh	6<19(

Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

## Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Wd{deoh	Lqfrph	
	Exw qr	_
/ Ryhu	//// ryh	Pdujlqdo Udwh
′3	'66/38	4813 (
'66/38	';8/68	5;13(
';8/68	46;/53	6413 (
46;/53	15:4/38	6913 (
15:4/38	dqg ryh	6<19(

#### Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho

Wd{deoh	Lqfrph	_	
	Exw qr	_	
/ Ryhu	//// ryh	Pdujlqdo	<u>Ud</u> wh
′3	153/93	4813 (	
153/93	′7 ;3</td <td>5;13(</td> <td></td>	5;13(	
′7 ;3</td <td>′:8/;:</td> <td>6413 (</td> <td></td>	′:8/;:	6413 (	
′:8/;:	468/85	6913 (	
468/85	dqg ryh	6<19(	

#### Vwdqgdug Ghgxfwl

10 0		
	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg ilc	7/483	'4/333
mrlqwo	19/<33	′;33
Khdg r:		
Krxvhkro	19/383	4/333
Pduulhg ila		
vhsdudwh	6/783	';33

Skdvhrxw	ıri Lwl	npl}hg	Ghgxi	
Pduulhg	ilolqj	vhsdu	dwho	193/933
Doo rwkl				454/531

Vwdqgdug	g Gl	ngxfwl	lrq	iru	Ghshqghqwv
Juhdwhu	ri	1983	ru	lqg:	lylgxdo
lqfrph					

## Skdvhrxw ri Shuvrqdo H{hps

	DJL		
_	Ehjlqqlqj	Pd{lpxp	
	Skdvhrx	Skdvhrx	
Vlqjc Pduulhg ilc	454/531	1576/:33	
mrlqv Khdg r:	4;4/;31	'637/633	
Krxvhkro Pduulhg ilc	484/833	15:7/333	
vhsdudwh	′<3/<33	485/483	

Shuvrqdo H{hpswl

15/98

## Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hoghuc	H{h	
	3	4	5	6	7
Vlqjc	9/;3	:/;3	;/;3		
Khdg ri Krxvhkr	;/:3	:3</td <td>43/:3</td> <td></td> <td></td>	43/:3		
Pduulhg ilolqj ı	45/53	46/33	46/;3	47/93	48/73

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U  $\label{lem:condition} {\tt Qrwh=\ Vhh\ kwws=22zzz1wd\{srolf\ |\ fhqwhu1ruj2wd\{idfwv2glvsod\ |\ didfw1fipBGrfLG@86<\ |\ didfwv2glvsod\ |\ didfw1fipBGrfLG@86<\ |\ didfwv2glvsod\ |\ didfw1fipBGrfLG@86<\ |\ didfwv2glvsod\ |\ didfw1fipBGrfLG@86<\ |\ didfw1fipBGrfLG@86<\ |\ didfw2glvsod\ |\ didfw1fipBGrfLG@86<\ |\ didfw2glvsod\ |\ didfw1fipBGrfLG@86<\ |\ didfw2glvsod\ |\ didfw2glvsod\$ 

Li	rxu ilolq	j vwdwxv lv	Vlqjoh	
	Wd{deoh	Lqfrph		
		Exw qr	•	
/	Ryhu	//// ryh	Pdujlqdo	Udwh
	′3	157/33	4813 (	
	157/33	18;/48	5;13(	
	18;/48	454/63	6413 (	
	454/63	1596/:8	6913(	
	1596/:8	dqg ryh	6<19(	

Li  rxu ilol	qj vwdwxv l	v Pduulho	<u>i</u> lolqj	mrlqwo
Wd{deoh	ı Lqfrph			
	Exw qr	•		
/ Ryhu	//// ryh	Pdujlqdo	Udwh	
′ 3	73/43	4813 (		
73/43	′<9/<3	5;13(		
′<9/<3	47:/:3	6413 (		
47:/:3	1596/:8	6913(		
1596/:8	dqg ryh	6<19(		

Li |rxu ilolqj vwdwxv lv Pdu

<u>Li</u>	rxu	ilolqj	vwdwxv	·lv	Khdg	ri	<u>Krx</u> vhkrog
	Wo	d{deoh	Lqfrph				
			Exw qr				

/ Ryhu	Exw qr //// ryh	Pdujlqdo Udwh
/ 3	'65/48	4813 (
65/48	';6/38	5;13(
';6/38	467/83	6413 (
467/83	1596/:8	6913 (
/596/:8	dqg ryh	6<19(

vhsdudwho			
Wd{deoh	Lqfrph	_	
	Exw qr	_	
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	153/38	4813 (	
153/38	77;/78	5;13(	
77;/78	':6/;8	6413 (	
':6/;8	'464/;:	6913(	
′464/;:	dqg ryh	6<19(	

Vwdqgdug Ghgxfwl

	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg ilc	7/333	'4/333
mrlqwo  Khdq r:	19/:33	';33
Krxvhkro Pduulhg ila	′8/<33	'4/333
vhsdudwh	<b>'</b> 6/683	′;33

Skdvhrx	w ri Lw	hpl}hg	Ghgx:	
Pduulhg	ilolqj	vhsdud	lwho	′8;/<:{
Doo rwkl				44:/<83

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '983 ru lqglylgxdo lqfrph

Skdvhrxw ri Shuvrqdo H{hps

	1 (1				
	DJL				
=	Ehjlqqlqj	Pd{lpxp			
	Skdvhrx	Skdvhrx			
Vlqjc Pduulhg ilc	44:/<83	1573/783			
mrlqv Khdg r:	4:9/<83	15< 781</td			
Krxvhkro Pduulhg ile	47:/783	159 <81</td			
vhsdudwh	′;;/7:8	47 :5</td			

Shuvrqdo H{hpswl '5/88

Ilolqj Wkuhvł

11014) WKalivi					
		Qxpehu ri Ed	olqg 2 Hoghu	o  H{h	
	3	4	5	6	7
Vlqjc	9/88	:/88	;/88		
Khdg ri Krxvhkr	;/78	78</td <td>43/78</td> <td></td> <td></td>	43/78		
Pduulhg ilolqj 1	44/;3	45/93	46/73	47/53	48/33

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< :

Li	rxu	ilol	qj.	vwdwxv	lv	Vlqjoh
----	-----	------	-----	--------	----	--------

HI THU HICHY	TWGW2LV IV	V = Q J O = 1	
Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	156/68	4813 (	
156/68	189/88	5;13(	
189/88	44:/<8	6413 (	
'44:/<8	1589/83	6913 (	
1589/83	dqg ryh	6<19(	

## Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo|

Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	<u>Ud</u> wh
′ 3	′6 33</th <th>4813 (</th> <th></th>	4813 (	
′6 33</th <th>'&lt;7/58</th> <th>5;13(</th> <th></th>	'<7/58	5;13(	
′<7/58	476/93	6413 (	
476/93	1589/83	6913 (	
1589/83	dqg ryh	6<19(	

Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Wd{deol			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo Udwh	
		_	
′ 3	64/58	4813 (	
64/58	';3/:8	5;13(	
';3/:8	463/;3	6413 (	
463/;3	1589/83	6913 (	
1589/83	dqg ryh	6<19(	

Li |rxu ilolqj vwdwxv lv Pdui vhsdudwho|

Wd{deoh	Wd{deoh Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	4 83</td <td>4813 (</td> <td></td>	4813 (	
'4 83</td <td>7:/45</td> <td>5;13(</td> <td></td>	7:/45	5;13(	
7:/45	':4/;3	6413 (	
':4/;3	45;/58	6913 (	
45;/58	dqg ryh	6<19(	

Vwdqgdug Ghgxfwl

10 0		
	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg ilc	′6/<33	′<83
mrlqwo	19/883	':83
Khdg r:		
Krxvhkro	18/:83	′<83
Pduulhg ila		
vhsdudwh	'6/5:8	':83

Skdvhrxw ri Lwhpl}hg Ghgxi

Pduulhg ilolqj vhsdudwho| '8:/683

Doo rwkl '447/:33

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '983 ru lqglylgxdo lqfrph

Skdvhrxw ri Shuvrqdo H{hps

_	DJL	
_	Ehjlqqlqj	Pd{lpxp
	Skdvhrx	Skdvhrx
Vlqjc Pduulhg ilc	447/:31	156:/533
mrlqv Khdg r:	4:5/381	15<7/883
Krxvhkro Pduulhg ilc	476/683	1598/;83
vhsdudwh	′;9/358	47:/5:8

Shuvrqdo H{hpswl '5/83

Ilolqj Wkuhvk

1)					
		Qxpehu ri Ed	olqg 2 Hoghu	o  H{h	
	3	4	5	6	7
Vlqjc	9/73	:/68	;/63		
Khdg ri Krxvhkr	;/58	53</td <td>43/48</td> <td></td> <td></td>	43/48		
Pduulhg ilolqj 1	44/88	45/63	46/38	46/;3	47/88

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzz1wd{srolf|fhqwhu1ruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86<

HI THU HICHY	TWGWILT IT	V = Q J O = 1	
Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	155/:8	4813 (	
155/:8	188/43	5;13(	
188/43	448/33	6413 (	
448/33	1583/33	6913 (	
1583/33	dqg ryh	6<19(	

## Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

Wd{deoh	Lqfrph		
	Exw qr	•	
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	'6;/33	4813 (	
'6;/33	′<4/;8	5;13(	
′<4/;8	473/33	6413 (	
473/33	1583/33	6913 (	
1583/33	dqg ryh	6<19(	

## Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Wd{deoh Lqfrph		
	Exw qr	•
/ Ryhu	//// ryh	Pdujlqdo Udwh
		_
′ 3	63/83	4813 (
'63/83	':;/:3	5;13(
':;/:3	45:/83	6413 (
45:/83	1583/33	6913 (
1583/33	dqg ryh	6<19(

Li |rxu ilolqj vwdwxv lv Pdui vhsdudwho|

Wd{deoh	Wd{deoh Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	'4 33</td <td>4813 (</td> <td></td>	4813 (	
'4 33</td <td>′78/&lt;5</td> <td>5;13(</td> <td></td>	′78/<5	5;13(	
′78/<5	':3/33	6413 (	
':3/33	458/33	6913 (	
458/33	dqg ryh	6<19(	

Vwdqgdug Ghgxfwl

	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg ilc	'6/;33	′<83
mrlqwo	19/683	1:83
Khdg r:		
Krxvhkro	18/933	′<83
Pduulhg ila		
vhsdudwh	′6/4:8	':83

Skdvhrxw ri Lwhpl}hg Ghgxi

Pduulhg ilolqj vhsdudwho| '88/<32

Doo rwkl '444/;31

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '933 ru lqglylgxdo lqfrph

Skdvhrxw ri Shuvrqdo H{hps

	DJL	
_	Ehjlqqlqj	Pd{lpxp
	Skdvhrx	Skdvhrx
Vlqjc Pduulhg ila	444/;33	1567/633
mrlqv Khdg r:	49:/:31	15<3/533
Krxvhkro Pduulhg il	46 :83</td <td>1595/583</td>	1595/583
vhsdudwh	1;6/;83	478/433

Shuvrqdo H{hpswl

15/78

Ilolqj Wkuhvk

'		Qxpehu ri	Eolqg 2 Hogh	uo  H{h	
	3	4	5	6	7
Vlqjc	9/58	:/53	;/48		
Khdg ri Krxvhkr	;/38	33</td <td><!--<8</td--><td></td><td></td></td>	<8</td <td></td> <td></td>		
Pduulhg ilolqj ı	44/58	45/33	45/:8	46/83	47/58

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfwlfipBGrfLG@86<

Li  rxu ilolo	j vwdwxv lv	Vlqjoh	
Wd{deoh	ı Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′ 3	155/43	4813 (	
155/43	186/83	5;13(	
186/83	448/33	6413 (	
448/33	1583/33	6913(	
1583/33	dgg ryh	6<19(	

<u>Li rxu ilolqj vwdwxv lv Pduulhg i</u> lolqj mrlqw	- 1
Wd{deoh Lqfrph	
Exw qr	
/ Ryhu //// ryh Pdujlqdo Udwh	
'3 '69/<3 4813(	
'69/<3 '; 48 5;13(</td <td></td>	
'; 48 '473/33 6413(</td <td></td>	
'473/33 '583/33 6913(	
'583/33 dqg ryh 6<19(	

Li	rxu	ilolqj	vwdwxv	lv	Khdg	ri	Krxvhkrog
	Wo	d{deoh :	Lqfrph				
			Exw qr				

wajacon	патты	-
	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh
′ 3	15 93</td <td>4813 (</td>	4813 (
15 93</td <td>':9/73</td> <td>5;13(</td>	':9/73	5;13(
':9/73	45:/83	6413 (
45:/83	1583/33	6913(
1583/33	dqg ryh	6<19(

Li	rxu	ilolqj	vwdwxv	lv	Pdu
vhs	sdudwl	nol			

Wd{deoh	Lqfrph	-	
	Exw qr	_	
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	'4;/78	4813 (	
'4;/78	777/8:	5;13(	
777/8:	':3/33	6413 (	
':3/33	458/33	6913(	
458/33	dqg ryh	6<19(	

## Vwdqgdug Ghgxfwl

	Vwdqgdu	Eolqg2Hogh
Vlqjc Pduulhg ilc	′6/:33	′ <33
mrlqwo	19/533	':33
Khdg r:		
Krxvhkro Pduulhg ild	18/783	′<33
vhsdudwh	6/433	':33

Skdvhrxw	ri	Lwhpl	}hg	Ghgx:

Pduı	ılhg	ilolqj	vhsdudwho	187/558
Doo	rwkl			43;/783

## Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '933 ru lqglylgxdo' lqfrph

## Skdvhrxw ri Shuvrqdo H{hps

	DJL	
_	Ehjlqqlqj	Pd{lpxp
	Skdvhrx	Skdvhrx
Vlqjc Pduulhg ilc	43;/783	1563/<83
mrlqv Khdg r:	495/:33	15;8/531
Krxvhkro Pduulhg ile	468/933	158;/431
vhsdudwh	';4/683	475/931

Shuvrqdo H{hpswl '5/68

## Ilolqj Wkuhvl

		Qxpehu ri	Eolqg 2 Hoghu	0   H{h	
	3	4	5	6	7
Vlqjc	9/38	9/<8	:/;8		
Khdg ri Krxvhkr	:/;3	;/:3	93</td <td></td> <td></td>		
Pduulhg ilolqj ı	43/<3	44/93	45/63	46/33	46/:3

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U Qrwh= Vhh kwws=22zzzlwd{srolf|fhqwhulruj2wd{idfwv2glvsod|didfw1fipBGrfLG@86< :

Li  rxu ilolaj vwdwxv lv	7 Vlaloh
--------------------------	----------

Wd{deoh	Lqfrph		
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	154/78	4813 (	
154/78	184/<3	5;13(	
′84/<3	dqg ryh	6413 (	

## Li | rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

Wd{deoh	Lqfrph	
	Exw qr	
/ Ryhu	//// ryh	Pdujlqdo Udwh
′3	15;/:8	4813 (
15;/:8	1:7/48	5;13(
':7/48	dqg ryh	6413 (

## Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg il	'6/933	′<33
mrlqwo	19/333	<b>':33</b>
Khdg r		
Krxvhkrog Pduulhg il	18/583	′<33
vhsdudwho	′6/333	′:33

#### Skdvhrxw ri Shuvrqdo H{hps

	DJL	
E	Ehjlqqlqj	Pd{lpxp
	Skdvhrxw	Skdvhrxw
Vlqjc	438/583	155:/:83
Pduulhg il		
mrlqwo	'48:/<33	15;3/733
Khdg r		
Krxvhkrog	464/883	1587/383
Pduulhg il		
vhsdudwho	':;/<83	473/533

## Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

Wd{deoh Lqfrph				,
	Exw c	Įr .		
/ Ryhu	//// r	ryh	Pdujlqdo	Udwh
′3	<b>′</b> 68	/;3	4813(	
'68/;3	′;9	/83	5;13(	
';9/83	dqg	ryh	6413(	

## Li |rxu ilolqj vwdwxv lv Pdu

#### vhsdudwho

Wd{deoh			
	Exw qr	-	
/ Ryhu	//// ryh	Pdujlqdo	<u>Ud</u> wh
			<u></u>
′3	′4:/<3	4813 (	
′4:/<3	776/58	5;13(	
76/58	dqg ryh	6413 (	

## Skdvhrxw ri Lwhpl}hg Ghgx:

Pduulhg	ilolqj	vhsdudwho	185/958
Doo rwkl			1438/58:

## Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '933 ru lqglylgxdo lqfrph

Shuvrqdo H{hpswl '5/63

## Ilolqj Wkuhvk

15					
		Qxpehu ri	Eolqg 2 Hoghu	10   H{l:	
	3	4	5	6	7
Vlqjc	8/<3	9/;3	:/:3		
Khdg ri Krxvhkr	:/88	;/78	68</td <td></td> <td></td>		
Pduulhg ilolqj :	43/93	44/63	45/33	45/:3	46/73

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U

Li	lrxu	ilolai	vwdwxv	1 17	Vlaich
шш	ırxu	TTOTAL	vwawxv	ΤV	VIGIC

Wd{deoh				
 / Ryhu	////	ryh	Pdujlqdo	Udwh
′3	,	53/68	4813 (	
153/68	,	7 63</td <td>5;13(</td> <td></td>	5;13(	
7 63</td <td>d</td> <td>qg ryh</td> <td>6413(</td> <td></td>	d	qg ryh	6413(	

## Li |rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

	Wd{deoh		
/	Ryhu	//// ryh	Pdujlqdo Udwh
	′3	15:/63	4813 (
	15:/63	':3/78	5;13(
	':3/78	dqg ryh	6413 (

## Vwdqgdug Ghgxfwl

	Vwdqgdug	Eolqg2Hoghuo
Vlqjc Pduulhg il	′6/733	′;83
mrlqwo	′8/:33	1983
Khdg r		
Krxvhkrog	18/333	′;83
Pduulhg il		
vhsdudwho	′5/;83	1983

## Skdvhrxw ri Shuvrqdo H{hps

	DJL			
-	Ehjlqqlqj	Pd{lpxp		
	Skdvhrxw	Skdvhrxw		
Vlqjc Pduulhg il:	433/331	1555/833		
mrlqw Khdg r:	0 '483/333	15:5/833		
Krxvhkrog Pduulhg il	458/333	157:/833		
vhsdudwh	o  ':8/333	<u>'469/58</u> 3		

## Li | rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo |

Wd{deoh	Wd{deoh Lqfrph		
	Exw qr	<del></del>	
/ Ryhu	//// ryh	Pdujlqdo Udwh	
′3	167/33	3 4813(	
'67/33	1;5/48	3 5;13(	
';5/48	dqg ry	yh 6413 (	

## Li |rxu ilolqj vwdwxv lv Pdu

#### vhsdudwho

Wd{deoh				
	Exw qr			
/ Ryhu	//// ryh	Pdujlqdo	Udwh	
′3	'4:/33	4813 (		
'4:/33	74/3:	5;13(		
74/3:	dqg ryh	6413(		

## Skdvhrxw ri Lwhpl}hg Ghgx:

Pduulhg	ilolqj	vhsdudwho	183/333
Doo rwkl			433/33

## Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '883 ru lqglylgxdo lqfrph

Shuvrqdo H{hpswl '5/48

## Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Hoghu	10   H{t	
	3	4	5	6	7
Vlqjc	8/88	9/73	:/58		
Khdg ri Krxvhkr	:/48	;/33	;/;8		
Pduulhg ilolqj	43/33	43/98	44/63	44/<8	45/93

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo U

Li | rxu ilolgj vwdwxv lv Vlgjoh

₩d{d	Wd{deoh Lqfrph				
	Exw	qr	•		
/ Ryhu	////	ryh	Pdujlqdo	Udwh	
				<u>.</u>	
,	3 ′	4 783</td <td>4813 (</td> <td></td>	4813 (		
'4 7</td <td>83 ′</td> <td>7:/383</td> <td>5;13(</td> <td></td>	83 ′	7:/383	5;13(		
77:/3	83 ′	<:/953	6613 (		
'<:/9	53 d	lqg ryh	u 6413 (		

Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo|

Wd{deol	Wd{deoh Lqfrph		
_	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	'65/783	4813 (	
65/783	':;/733	5;13(	
':;/733	495/::3	6613(	
'495/::3	dqg ryh	u 6413(	

Li |rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog

KIXVIIKIOG			
Wd{deoh	Wd{deoh Lqfrph		
	Exw qr	<del>_</del>	
/ Ryhu	//// ryh	Pdujlqdo Udwh	
		_	
′3	159/38	33 4813 (	
159/383	19:/53	5;13(	
19:/533	1467/<6	6613 (	
467/<63	dqg ry	hu 6413 (	

Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj vhsdudwho|

Wd{deoh			
	Exw qr		
/ Ryhu	//// ryh	Pdujlqdo	Udwh
′3	149/558	4813 (	
149/558	'6 533</th <th>5;13(</th> <th></th>	5;13(	
′6 533</th <th>456/8:3</th> <th>6613 (</th> <th></th>	456/8:3	6613 (	
456/8:3	dqg ryh	u 6413 (	

Ghgxfwlrqv

Vwdqgdu	Eolqg2Hogh
16/583	′;33
18/783	1983
77/:83	′;33
15/:58	1983
	76/583

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv

Juhdwhu ri '833 ru lqglylgxdov hduqhg lqfrph

Shuvrqdo h{hpswlrq '5/383

Ilolqj Wkuhvk

		Qxpehu ri	Eolqg 2 Ho	oghuo  H{hps	swlrqv
	3	4	5	6	7
Vlqjc	8/63	9/43	9/<3		_
Khdg ri Krxvhkr	9/;3	:/93	;/73		
Pduulhg ilolqj ı	88</td <td>43/53</td> <td>43/;8</td> <td>44/83</td> <td>45/48</td>	43/53	43/;8	44/83	45/48

Vrxufh= Lqvwuxfwlrqv iru Irup 4373= Lqwhuqdo Uhyhqxh Vhu Rfwrehu 4:/ 5339 iurp kwws=22zzz1luv1jry2sxe2luv0sulru2

Li | rxu ilolqj v\d\q\x\vec{v}d\q\x\vec{x}\vec{v}hlv

Li |rxu ilolqj v\dwx\hgvilolqj mrlqwo|

Wd{d		n Lqfrph	Wd{deol
		Exw qr	
/ Ryhu	Udwh	//// ryh	/ Ryhu
•	48 (	'4;/88	′3
′63/<	5 <b>;</b> (	′77/<3	'4;/88
′:7/;	66 (	′<6/46	′77/<3
488/6	5;(	dqg ryh	′<6/46

Wd{deol	ı Lqfrph	
	Exw qr	
/ Ryhu	//// ryh	Udwh
′3	′63/<8	48 (
'63/<8	′:7/;8	5;(
′:7/;8	488/65	66 (
488/65	dqg ryh	5 <b>;</b> (

Li | rxu ilolqj vwdwxv lv Khdg ri

Li |rxu ilolqj vPduulhg ilolqj vhsdu

Wd{deol	n Lqfrph	
	Exw qrw	
/ Ryhu	//// ryh	Udwh
′3	157/;8	48(
′57/ <b>;</b> 8	197/53	5;(
197/53	45;/;4	66 (
45;/;4	dqg ryh	5 <b>;</b> (

Wd{deo	h Lqfrph	
	Exw qrw	
/ Ryhu	//// ryh	Udwh
′3	'48/7:	48 (
'48/7:	′6:/75	5;(
′6:/75	′44:/;<	66 (
′44:/;<	dqg ryh	5;(

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Vwdwlvwlfv ri Lqfrph/ Lqglylgxdo L

Wd{deol	n Lqfrph	
	Exw qr	
/ Ryhu	//// ryh	Udwh
′3	154/78	48 (
'4:/;8	76/48	5 <b>;</b> (
76/48	'; 89</td <td>66 (</td>	66 (
'; 89</td <td>dqg ryh</td> <td>5;(</td>	dqg ryh	5;(

Li |rxu ilolqj vPduulhg ilolqj m

Wd{de	oh Lqfrph	
	Exw qr	
/ Ryhu	//// ryh	Udwh
′3	15 :8</td <td>48 (</td>	48 (
15 :8</td <td>':4/&lt;3</td> <td>5;(</td>	':4/<3	5;(
':4/<3	47 58</td <td>66 (</td>	66 (
47 58</td <td>dqg ryh</td> <td>5;(</td>	dqg ryh	5;(

Li |rxu ilolqj vwdwxv lv Khdg ri

Li |rxu ilolqj vPduulhg ilolqj vhsdu

Wd{deo	h Lqfrph		Wd{deoh Lqfrph		
	Exw qrw		Exw qrw		
/ Ryhu	//// ryh	Udwh	/ Ryhu	//// ryh	Udwh
′3	156/<3	48 (	′3	′47/;:	48(
156/<3	194/98	5;(	′47/;:	'68/<8	5;(
194/98	456/:<	66 (	′68/<8	446/63	66 (
456/:<	dqg ryh	5;(	446/63	dgg ryh	5;(

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Vwdwlvwlfv ri Lqfrph/ Lqglylgxdo Lqfrph

Li | rxu ilolqj v\d\q\x\vec{v}d\q\x\vec{x}\vec{v}hlv

Li | rxu ilolqj v\dwx\dyvilolqj mrlqwo |

Wd{dec	h Lqfrph		Wd{deo]	n Lqfrph	
	Exw qr			Exw qr	
/ Ryhu	//// ryh	Udwh	/ Ryhu	//// ryh	Udwh
′3	'4/;3	44 (	′3	'6/33	44 (
'4/;3	'49/;3	48 (	'6/33	15;/33	48(
49/;3	15:/33	5;(	15;/33	78/33	5;(
15:/33	187/33	68 (	78/33	′<3/33	68 (
187/33	dqq ryh	6;18(	′<3/33	dqg ryh	6;18(

Li |rxu ilolqj vwdwxv lv Khdg ri Li |rxu ilolqj vPduulhg ilolqj vhsdu

Wd{dec	h Lqfrph		Wd{deo	h Lqfrph	
	Exw qrw		' <u>'</u>	Exw qrw	
/ Ryhu	//// ryh	Udwh	/ Ryhu	//// ryh	Udwh
′3	15/83	44 (	′3	4/83	44 (
15/83	156/33	48 (	'4/83	47/33	48(
156/33	'6;/33	5;(	47/33	155/83	5;(
'6;/33	';3/33	68 (	155/83	78/33	68 (
';3/33	dqg ryh	6;18(	′78/33	dgg ryh	6;18(

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Vwdwlvwlfv ri Lqfrph/ Lqglylgxdo Lqfrph

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<;9

Wd{deoh	Lqfrph	Udwh
′3 (	′6/9:	3 (
′6/9: (	′8/<7	44 (
′8/<7 (	';/53	45 (
′;/53 (	45/;7	47 (
45/;7 (	′4:/5:	49 (
′4:/5: (	154/;3	4;(
′54/;3 (	159/88	55 (
'59/88 C	′65/5:	58 (
'65/5: (	′6:/<;	5 <b>;</b> (
′6:/<;	′7 75</td <td>66 (</td>	66 (
′7 75 (</td <td>197/:8</td> <td>6;(</td>	197/:8	6;(
′97/:8 (	'<5/6:	75 (
′<5/6: (	'44;/38	78 (
′44;/38 (	4:8/58	7< (
4:8/58	dqg ryh	83 (

41 4<;4 D

51 Lqfoxghv }hur0eudfnhw dprxqw

Lqglylgxdo Lqfrph Wd $\{$  Sdudp Pduulhg Ilolqj Mr 4<;8

Wd{deo	h Lqfrph	Udwh
′ 3	( '6/87	3 (
<b>′</b> 6/87	( '8/:5	44 (
′8/:5	( ':/<4	45 (
′:/<4	( '45/6<	47(
45/6<	( '49/98	49(
149/98	( '54/35	4;(
154/35	( '58/93	55 (
158/93	( '64/45	58 (
64/45	( '69/96	5 <b>;</b> (
169/96	( '7:/9:	66 (
7:/9:	( '95/78	6;(
195/78	( '; 3<</td <td>75 (</td>	75 (
′; 3<</td <td>( '446/;9</td> <td>78 (</td>	( '446/;9	78 (
446/;9	( '49 35</td <td>7&lt; (</td>	7< (
49 35</td <td>(dqg ryh</td> <td>83 (</td>	(dqg ryh	83 (

41 4<;4 E

51 Lqfoxghv }hur0eudfnhw dprxqw

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<;7

Wd{deoh	Lqfrph	Udwh
′3 (	'6/73	3 (
'6/73 (	'8/83	44 (
18/83	':/93	45 (
′:/93 (	'44/<3	47 (
'44/<3	'49/33	49 (
49/33	1 53/53	4;(
153/53	157/93	55 (
'57/93 (	15 <3</td <td>58 (</td>	58 (
15 <3</td <td>'68/53</td> <td>5<b>;</b>(</td>	'68/53	5 <b>;</b> (
'68/53 (	78/;3	66 (
78/;3	93/33	6;(
193/33	';8/93	75 (
';8/93	43 73</td <td>78 (</td>	78 (
43 73</td <td>495/73</td> <td>7&lt; (</td>	495/73	7< (
1495/73	dqg ryh	83 (

- 41 4<;4 E
- 51 Lqfoxghv }hur0eudfnhw dprxqw
- 61 Grhv qrw lqfoxgh dgg0rq plqlpxp wd{ rq suhihuhqfh lwhpv ru dowhuqdwlyh plqlpxp wd{1
- 71 Grhv qrw doorz iru wkh uhixqgdeoh hduqhg0lqfrph fuhglw1

Vrxufh= Mrvhsk Shfkp<u>Mbghudo Wd{ Sr</u>ólÆdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<;6

Wd{deol	n Lqfrph	Udwh
′ 3	( '6/73	3 (
′6/73	( '8/83	44 (
18/83	( ':/93	46 (
':/93	44/<3	48 (
'44/<3	49/33	4:(
'49/33	153/53	4< (
153/53	157/93	56 (
157/93	′5 <3</td <td>59 (</td>	59 (
′5 <3</td <td>168/53</td> <td>63 (</td>	168/53	63 (
'68/53	778/;3	68 (
78/;3	( '93/33	73 (
193/33	( ';8/93	77 (
';8/93	43 73</td <td>7;(</td>	7;(
'43 73</td <td>(dqg ryh</td> <td>83 (</td>	(dqg ryh	83 (

- 41 4<;4 E
- 51 Lqfoxghv }hur0eudfnhw dprxqw
- 61 Grhv qrw lqfoxgh dgg0rq plqlpxp wd{ rq suhihuhqfh lwhpv ru dowhuqdwlyh plqlpxp wd{1
- 71 Grhv qrw doorz iru wkh uhixqgdeoh hduqhg0lqfrph fuhglw1

Vrxufh= Mrvhsk Shfkp<u>flhqfhudo Wd{ Sr</u>ólffdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<;5

Wd{deoh	Lqfrph	Udwh
′3 (	'6/73	3 (
'6/73 (	18/83	45 (
′8/83 (	':/93	47 (
′:/93 (	44/<3	49(
′44/<3 (	149/33	4< (
'49/33 (	153/53	55 (
′53/53 (	157/93	58 (
'57/93 (	15 <3</td <td>5&lt;(</td>	5<(
′5 <3 (</td <td>'68/53</td> <td>66 (</td>	'68/53	66 (
'68/53 (	78/;3	6< (
′78/;3 (	193/33	77 (
193/33 (	';8/93	7< (
′;8/93 (	dqg ryh	83 (

- 41 4<;4 E
- 51 Lqfoxghv }hur0eudfnhw dprxqw
- 61 Grhv qrw lqfoxgh dgg0rq plqlpxp wd{ rq suhihuhqfh lwhpv ru dowhuqdwlyh plqlpxp wd{1}
- 71 Grhv qrw doorz iru wkh uhixqgdeoh hduqhg0lqfrph fuhglw1

Vrxufh= Mrvhsk Shfkp<u>Mhqdhudo Wd{ Sr</u>ól**X**dvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<;4

Wd{deoh	Lqfrph	Udwh
′3 (	16/73	3 (
'6/73 C	18/83	461;6(
18/83	':/93	481;3(
′:/93 0	44/<3	4:1::8
′44/<3 0	149/33	531:6:8
49/33	153/53	561:3(
153/53	157/93	5:198(
'57/93 C	15 <3</td <td>64193 (</td>	64193 (
′5 <3</td <td>168/53</td> <td>69186:8</td>	168/53	69186:8
168/53	78/;3	7517958
78/;3	193/33	7;16;:8
193/33	';8/93	8616583
';8/93 (	43 73</td <td>8;15958</td>	8;15958
43 73</td <td>495/73</td> <td>96153 (</td>	495/73	96153 (
495/73	1548/73	9:148(
1548/73	dqg ryh	9<1458

- 41 4<;4 E
- 51 Lqfoxghv }hur0eudfnhw dprxqw
- 61 Grhv qrw lqfoxgh dgg0rq plqlpxp wd{ rq suhihuhqfh lwhpv ru dowhuqdwlyh plqlpxp wd{1
- 71 Grhv qrw doorz iru wkh uhixqgdeoh hduqhg0lqfrph fuhglw1
- 81 Diwhu wd{ fuhglw ri 4158 shufhqw djdlqvw uhjxodu wd{1}

# Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<:<04<;

Wd{deol	. Lqfrph	Udwh
′3	'6/73	3 (
'6/73	'8/83	47(
18/83	':/93	49 (
':/93	44/<3	4;(
'44/<3	49/33	54 (
49/33	153/53	57(
153/53	757/93	5;(
'57/93	'5 <3</td <td>65 (</td>	65 (
15 <3</td <td>'68/53</td> <td>6:(</td>	'68/53	6:(
'68/53	78/;3	76 (
78/;3	1 93/33	7< (
193/33		
';8/93		
43 73</td <td>•</td> <td></td>	•	
'495/73	·	
· .	dqg ryh	:3 (

### Qrwhv

- 41 4<:; [
- 51 Lqfoxghv }hur0eudfnhw dprxqw
- 61 Grhv qrw lqfoxgh dgg0rq plqlpxp wd{ rq suhihuhqfh lwhpv ru dowhuqdwlyh plqlpxp wd{1
- 71 Hduqhg lqfrph vxemhfw wr pd{lpxp pdujlqdo udwh ri 83 shufhqw1
- 81 Grhv qrw doorz iru wkh uhixqgdeoh hduqhg0lqfrph fuhglw1

Lqglylgxdo Lqfrph Wd{ Sdudp
 Pduulhg Ilolqj Mr
 4<::04<:;</pre>

Wd{ded	oh 1	Lgfrph	Udwh
		* *	
′3	0	6/533	3 (
'6/533	0	7/533	47 (
′7/533	0	18/533	48 (
18/533	0	19/533	49 (
19/533	0	':/533	4:(
':/533	0	44/533	4< (
44/533	0	48/533	55 (
48/533	0	'4 533</td <td>58 (</td>	58 (
′4 533</td <td>0</td> <td>156/533</td> <td>5;(</td>	0	156/533	5;(
156/533	0	15:/533	65 (
15:/533	0	'64/533	69 (
'64/533	0	'68/533	6< (
'68/533	0	′6 533</td <td>75 (</td>	75 (
′6 533</td <td>0</td> <td>76/533</td> <td>78 (</td>	0	76/533	78 (
76/533	0	7:/533	7;(
7:/533	0	188/533	83 (
188/533	0	19:/533	86 (
19:/533	0	': 533</td <td>88 (</td>	88 (
': 533</td <td>0</td> <td>′&lt;4/533</td> <td>8;(</td>	0	′<4/533	8;(
'<4/533	0	436/533	93 (
/ =	_	= . / =	0= /
436/533	0	456/533	95 (
456/533	0	476/533	97 (
476/533	0	496/533	99 (
496/533	0	4;6/533	9;(
4;6/533	0	1536/533	9<(
1536/533	0 d	.qg ryhu	:3(

# Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<:404<:!

Wd{deo	h Lo	qfrph	Udwh
′ 3	C	'4/33	47 (
'4/33	C	15/33	48 (
15/33	C	′6/33	49(
′6/33	C	7/33	4:(
77/33	C	';/33	4< (
′;/33	C	45/33	55 (
45/33	C	49/33	58 (
49/33	C	153/33	5;(
'53/33	C	157/33	65 (
'57/33	C	15;/33	69 (
15;/33	C	'65/33	6< (
'65/33	(	169/33	75 (
169/33	(	73/33	73 ( 78 (
73/33	(	77/33	73 ( 7; (
77/33	(	185/33	83 (
,,,33		03/33	03 (
185/33	C	197/33	86 (
197/33	C	':9/33	88 (
':9/33	C	';;/33	8;(
';;/33	C	433/33	93 (
433/33	C	453/33	95 (
453/33	C	473/33	97 (
473/33	(	493/33	99 (
493/33	(	433/33	9;(
4,3/33	(	1,3/33	9<(
1,3/33		g ryh	:3(

### Qrwhv

- 41 4<9< I
- 51 Grhv qrw lqfoxgh plqlpxp wd{ suhihuhqfh lwhpv1
- 61 Hduqhg lqfrph vxemhfw wr pd{lpxp pdujlqdo udwhv ri 93 shufhqw lq 4<:4 dqg 83 shufhqw ehjlqqlqj lq 4<:51
- 71 Grhv qrw doorz iru 43 shufhqw uhedwh r
- +pd{lpxp ri '533, ru d uhixqgdeoh hduqhg0lqfrph fuhglw ri
- 43 shufhqw hduqhg lqfrph xs wr '7/333 +skdvhg grzq wr }hur
- dw ';/333, ehjlqqlqj lq 4<:81

Vrxufh= Mrvhsk Shfkp<u>Mhqhudo Wd{ Sr</u>ólÆdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

# Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<:3

Wd{deoh	Lqfrph	Udwh
′3 (	,	47133 (
'4/33 (	15/33	48133 (
15/33	16/33	49173 (
'6/33	77/33	4:1758
77/33	′;/33	4<17:8
';/33 (	45/33	55188(
45/33 (	149/33	581958
49/33 (	153/33	5;1:3(
153/33	157/33	651;3(
157/33	15;/33	691<3(
15;/33	165/33	6<1<:8
165/33	'69/33	76138(
169/33	73/33	791458
73/33	77/33	7<153(
777/33	185/33	84158(
185/33	197/33	871658
197/33	':9/33	8916:8
':9/33 (	';;/33	8<178(
';;/33 (	433/33	94183 (
433/33	453/33	96188(
453/33	473/33	98193(
473/33	1493/33	9:198(
493/33	'4;3/33	9<1:3(
4;3/33	1533/33	:31:58
1533/33	dqg ryh	:41:8(

### Qrwhv

Vrxufh= Mrvhsk Shfkp<u>flhqfhudo Wd{ Sr</u>ólffdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

<sup>41 4&</sup>lt;9< I

<sup>51</sup> Lqfoxghv vxufkdujh ri 518 shufhqw / ehjla

<sup>&#</sup>x27;5/33306/333 eudfnhw1 D sduwldo vxufkdujh h{hpswlrq/ edvhg rq d judgxdwhg vfdoh/ dssolhg wr wklv dqg wkh qh{w kljkhu eudfnhw1 Wkh pdujlqdo udwhv lq wkhvh eudfnhwv wkhuhiruh ydulhg voljkwo| iurp wkrvh vkrzq deryh

<sup>61</sup> Grhv qrw lqfoxgh plqlpxp wd{ suhihuhqfh lwhpv1

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<9<

Wd{deoh	Lqfrph	Udwh
′3	'4/33	4713 (
4/33	15/33	4813 (
15/33	'6/33	4:19(
6/33	77/33	4;1:(
7/33	';/33	531<(
′;/33	45/33	5715 (
45/33		
49/33		
15/33		
157/33	•	
3,7,33	3,7,33	0 (13 (
15;/33	'65/33	751<(
65/33	'69/33	7915 (
169/33	73/33	7<18 (
73/33	777/33	851;(
777/33	185/33	8813 (
'85/33	107/22	0.16/
197/33	•	8;16( 9318(
':9/33 (		
·		961;(
';;/33	·	
'433/33	453/33	9;15(
453/33	473/33	:317(
473/33	493/33	:519(
493/33	'4;3/33	:71;(
4;3/33		:81<(
′533/33	dqg ryh	::13(

Vrxufh= Mrvhsk Shfkp<u>Mhqdhudo Wd{ Sr</u>ol**Z**dvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

<sup>41 4&</sup>lt;9; [

<sup>51</sup> Lqfoxghv vxufkdujh ri 43 shufhqw / ehjlq

<sup>&#</sup>x27;5/33306/333 eudfnhw1 D sduwldo vxufkdujh h{hpswlrq/ edvhg rq d judgxdwhg vfdoh/ dssolhg wr wklv dqg wkh qh{w kljkhu eudfnhw1 Wkh pdujlqdo udwhv lq wkhvh eudfnhwv wkhuhiruh ydulhg voljkwo| iurp wkrvh vkrzq deryh

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<9;

Wd{deol	. Lqfrph	Udwh
′3	'4/33	47133 (
,	'5/33	
15/33	'6/33	4:153(
'6/33	77/33	4;15:8
7/33	';/33	531758
′;/33	45/33	561983
45/33	49/33	591;:8
'49/33	153/33	63143 (
153/33	157/33	67173 (
157/33	15;/33	6;1:3(
15;/33	65/33	741<58
	'69/33	78148(
'69/33	73/33	7;16:8
73/33	777/33	84193 (
77/33	'85/33	861:8(
185/33	97/33	891<:8
197/33	':9/33	8<1458
':9/33	';;/33	95168(
';;/33	433/33	97183 (
433/33	453/33	99198(
453/33	473/33	9;1;3(
473/33	493/33	
	4;3/33	
	533/33	:714:81
1533/33	dqg ryh	:8158(

Vrxufh= Mrvhsk Shfkp<u>Mhqdhudo Wd{ Sr</u>ol**Z**dvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

<sup>41 4&</sup>lt;9; [

<sup>51</sup> Lqfoxghv vxufkdujh ri :18 shufhqw / ehjla

<sup>&#</sup>x27;5/33306/333 eudfnhw1 D sduwldo vxufkdujh h{hpswlrq/ edvhg rq d judgxdwhg vfdoh/ dssolhg wr wklv dqg wkh qh{w kljkhu eudfnhw1 Wkh pdujlqdo udwhv lq wkhvh eudfnhwv wkhuhiruh ydulhg voljkwo| iurp wkrvh vkrzq deryh

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<9804<9

Wd{deol	ı Lqfrph	Udwh
	4/33	
'4/33	•	48 (
15/33	( '6/33	49(
'6/33	77/33	4:(
7/33	';/33	4< (
′;/33	45/33	55 (
45/33	( '49/33	58 (
49/33	153/33	
153/33	157/33	
157/33	75;/33	69 (
15;/33	( '65/33	6< (
	( '69/33	
	773/33	
·	777/33	
·	·	• •
77/33	785/33	83 (
185/33	197/33	86 (
197/33	( ':9/33	88 (
':9/33	( ';;/33	8;(
';;/33	433/33	93 (
433/33	453/33	95 (
453/33	( '473/33	97 (
·	4/3/33	
·	493/33	
·		• •
	•	
1533/33	(dqg ryh	:3(

Vrxufh= Mrvhsk Shfkp<u>Bhqhudo Wd{ Sr</u>blf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

4<97 Df

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<97

Wd{dec	h	Lqfrph	Udwh
′3	(	'4/33	4913(
'4/33	(	15/33	4918(
15/33	(	16/33	4:18(
'6/33	(	17/33	4;13(
′7/33	(	';/33	5313 (
′;/33	(	45/33	5618(
45/33	(	149/33	5:13(
49/33	(	153/33	6318(
153/33	(	157/33	6713 (
157/33	(	15;/33	6:18(
′5;/33	(	165/33	7413 (
165/33	(	169/33	7718(
169/33	(	73/33	7:18(
'73/33	(	777/33	8318(
77/33	(	185/33	8618(
185/33	(	197/33	8913 (
97/33	(	':9/33	8;18(
':9/33	(	';;/33	9413 (
';;/33	(	433/33	9618(
433/33	(	453/33	9913 (
100,00	•	133,33	3313 (
453/33	(	473/33	9;18(
473/33	(	493/33	:413 (
493/33	(	4;3/33	:618(
'4;3/33	(	1533/33	:813(
1533/33	(	733/33	:918(
733/333	0	dqg ryh <sup>d</sup> u	::13(

Vrxufh= Mrvhsk Shfkp<u>dhqfhudo Wd{ Sr</u>6lf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

4<97 Df

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<8704<90

Wd{dec	h	Lqfrph	Udwh
′3	(	77/33	5313 (
7/33	(	′;/33	5513 (
′;/33	(	45/33	5913 (
45/33	(	149/33	6313 (
'49/33	(	153/33	6713 (
153/33	(	157/33	6;13(
157/33	(	15;/33	7613(
15;/33	(	165/33	7:13(
65/33	(	169/33	8313 (
'69/33	(	73/33	8613 (
′73/33	(	77/33	8913 (
777/33	(	185/33	8<13 (
185/33	(	197/33	9513 (
197/33	(	':9/33	9813 (
':9/33	(	′;;/33	9<13 (
′;;/33	(	433/33	:513(
433/33	(	453/33	:813(
453/33	(	473/33	:;13(
473/33	(	493/33	;413(
493/33	(	4;3/33	;713(
4;3/33	(	1533/33	;:13(
1533/33	(	1633/33	;<13(
'633/33	(	733/33	<313(
733/333	0	dqg ryh <sup>d</sup> u	<413 (

Vrxufh= Mrvhsk Shfkpjjhghudo Wd{ Srjolf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

 $<sup>^{\</sup>rm d} {\tt Vxemhfw}$  wr wkh iroorzlqj pd{lpxp hiihfwlyh udwh olplwdwlrq= ;:(

e 4<84 Dfw

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<8504<80

Wd{dec	h	Lqfrph	Udwh
′ 3	(	7/33	5515(
77/33		';/33	5719(
';/33		45/33	5<13(
45/33	(	149/33	6713 (
'49/33	(	153/33	6;13(
153/33	(	157/33	7513 (
157/33	(	15;/33	7;13(
15;/33	(	65/33	8613(
165/33	(	169/33	8913(
169/33	(	73/33	8<13 (
73/33	(	777/33	9513 (
'77/33	(	'85/33	
'85/33	(	197/33	
197/33	(	':9/33	9;13(
':9/33	(	';;/33	:513(
′;;/33	(	433/33	:813(
433/33		453/33	
453/33	(	473/33	;313(
473/33	(	1493/33	•
493/33	(	'4;3/33	;813(
'4;3/33	(	1533/33	;;13(
1533/33	(	1633/33	<313 (
'633/33	(	733/33	<413 (
733/333	0	dqg ryh <sup>d</sup> u	<513 (

 $<sup>^{\</sup>rm d}{\tt Vxemhfw}$  wr wkh iroorzlqj pd{lpxp hiihfwlyh udwh olplwdwlrq= ;;(

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<84

Wd{dec	h	Lqfrph	Udwh
′ 3	(	′7/33	5317(
7/33	(	′;/33	5517(
′;/33		145/33	5:13(
45/33	(	149/33	6313(
'49/33	(	153/33	6813 (
153/33	(	157/33	6<13(
157/33	(	15;/33	7613(
15;/33	(	165/33	7;13(
65/33	(	169/33	8413 (
169/33	(	73/33	8713 (
′73/33	(	777/33	8:13(
777/33	(	185/33	9313 (
185/33	(	197/33	9613(
197/33	(	':9/33	9913(
':9/33	(	';;/33	9<13(
′;;/33	(	433/33	:613(
433/33	(	453/33	:813(
453/33	(	473/33	:;13(
473/33	(	493/33	;513(
493/33	(	4;3/33	;713(
4;3/33	(	1533/33	;:13(
1533/33	(	'633/33	;<13(
1633/33	(	733/33	<313 (
733/333	0	dqg ryhu	<413 (

 $<sup>^{\</sup>rm d} {\tt Vxemhfw}$  wr wkh iroorzlqj pd{lpxp hiihfwlyh udwh olplwdwlrq= ;:15(1

e 4<84 Dfw

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<83

Wd{dec	h I	Lqfrph	Udwh
′ 3	(	7/33	4:173(
7/33	(	′;/33	53135(
′;/33	(	45/33	56199(
45/33	(	49/33	5:163(
'49/33	(	153/33	631<7(
153/33	(	157/33	6718;(
157/33	(	15;/33	6<146(
15;/33	(	165/33	751::(
65/33	(	169/33	78183(
169/33	(	73/33	7;156(
′73/33	(	777/33	831<9(
777/33	(	185/33	8619<(
185/33	(	197/33	89175(
197/33	(	':9/33	8<148(
':9/33	(	';;/33	951:<(
′;;/33	(	433/33	98185(
433/33	(	453/33	9;158(
453/33	(	473/33	:31<;(
473/33	(	493/33	:61:4(
493/33	(	4;3/33	:9177(
4;3/33	(	1533/33	:<14:(
1533/33	(	15:6/76	;31<<(
15:6/76	(	'633/33	;51836(
'633/33	(	733/33	;61763(
733/333	0 d	.qg ryh <sup>d</sup> u	;7168:(

Vrxufh= Mrvhsk Shfkpmdghudo Wd{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

 $<sup>^{\</sup>rm d}{\tt Vxemhfw}$  wr wkh iroorzlqj pd{lpxp hiihfwlyh udwh olplwdwlrq= ;:(1

e 4<83 Dfw

Lqglylgxdo Lqfrph Wd{ Sdudp Pduulhg Ilolqj Mr 4<7;04<7·

Wd{dec	h	Lqfrph	Udwh
′ 3	(	77/33	49193(
7/33	(	′;/33	4<169(
′;/33	(	45/33	551;;(
45/33	(	149/33	59173(
49/33	(	153/33	5<1<5(
153/33	(	157/33	66177(
157/33	(	15;/33	6:1;7(
15;/33	(	65/33	74169(
65/33	(	169/33	77133(
169/33	(	73/33	79197(
73/33	(	77/33	7<15;(
777/33	(	185/33	841<5(
185/33	(	197/33	87189(
197/33	(	':9/33	8:153(
':9/33	(	';;/33	931:5(
';;/33	(	433/33	96169(
433/33	(	453/33	99133(
453/33	(	473/33	9;197(
473/33	(	1493/33	:415;(
493/33	(	'4;3/33	:61<5(
'4;3/33	(	1533/33	:9189(
1533/33	(	15:6/76	:;165(
15:6/76	(	633/33	;316558
'633/33	(	733/33	;415583
733/333	0	dqg ryhu	;5145:8(

Vrxufh= Mrvhsk Shfkp<u>Maghudo Wd{ Sr</u>blf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

e 4<7; Dfw

Vlqfh 4<7; pduulhg frxsohv kdyh ehhq wr vsolw wkhlu lqfrph iru wd{ sxusrvhv1 Udwhv vkrzq duh iru pduulhg frxsohv ilolqj mrlqw wd{ uhwxuqv1

 $<sup>^{\</sup>rm d} Vxemhfw$  wr wkh iroorzlqj pd{lpxp hiihfwlyh udwh olplwdwlrq= ::(

Lqglylgxdo Lqfrph Wd $\{$  Sdudp 4<7904<7

Wd{dec	h	Lqfrph	Udwh
′ 3	(	15/33	4<133(
15/33	(	7/33	531<3(
7/33	(	19/33	571:3(
19/33	(	′;/33	5;183(
′;/33	(	43/33	65163(
43/33	(	45/33	69143 (
45/33	(	47/33	731;8(
47/33	(	149/33	77198(
49/33	(	'4;/33	7:183(
'4;/33	(	153/33	83168(
153/33	(	155/33	86153(
155/33	(	159/33	89138(
159/33	(	165/33	8;1<3(
165/33	(	′6;/33	941:8(
′6;/33	(	777/33	98188(
77/33	(	183/33	9;173(
183/33	(	193/33	:4158(
193/33	(	':3/33	:7143(
':3/33	(	';3/33	:91<8(
';3/33	(	'<3/33	:<1;3(
′<3/33	(	433/33	;5198(
433/33	(	483/33	;7188(
483/33	(	1533/33	;8183(
1533/333	0	dqg ryhu	;9178(

Vrxufh= Mrvhsk Shfkp<u>Mbqhudo Wd{ Sr</u>6lf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

 $<sup>^{\</sup>rm d} \rm Vxemhfw$  wr wkh iroorzlqj pd{lpxp hiihfwlyh udwh olplwdwlrqv= ;818 shufhqw iru 4<7907:1  $^{\rm e}$  4<78 Dfw

Lqglylgxdo Lqfrph Wd $\{$  Sdudp 4 < 7704 < 78

Wd{dec	h	Lqfrph	Udwh
′ 3	(	15/33	56 (
15/33	(	7/33	58 (
7/33	(	19/33	5< (
19/33	(	′;/33	66 (
′;/33	(	43/33	6:(
43/33	(	45/33	74 (
45/33	(	47/33	79 (
47/33	(	49/33	83 (
149/33	(	'4;/33	86 (
'4;/33	(	153/33	89 (
153/33	(	155/33	8< (
155/33	(	159/33	95 (
159/33	(	65/33	98 (
65/33	(	′6;/33	9;(
′6;/33	(	177/33	:5(
77/33	(	183/33	:8(
183/33	(	193/33	:;(
193/33	(	':3/33	;4(
':3/33	(	';3/33	;7(
';3/33	(	′<3/33	;:(
′<3/33	(	433/33	<3 (
433/33		483/33	<5 (
483/33		1533/33	<6 (
1533/333	0	dqg ryh <sup>d</sup> u	<7 (

Vrxufh= Mrvhsk Shfkp<u>Mbqhudo Wd{ Sr</u>6lf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

dVxemhfw wr wkh iroorzlqj pd{lpxp hiihfwlyh udwh olplwdwlrqv= <313 shufhqw iru 4<7704<78 e 4<77 Dfw</pre>