25-Jan-22
Click on Excel link above for all other years' tables.

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

If your filing status is Single

| Taxable Income |  |  |
| ---: | ---: | ---: |
| Over --- | But not <br> over --- | Marginal Rate |
| $\$ 0$ | $\$ 10,275$ |  |
| $\$ 10,275$ | $\$ 41,775$ | $10 \%$ |
| $\$ 41,775$ | $\$ 89,075$ | $12 \%$ |
| $\$ 89,075$ | $\$ 170,050$ | $22 \%$ |
| $\$ 170,050$ | $\$ 215,950$ | $24 \%$ |
| $\$ 215,950$ | $\$ 539,900$ | $32 \%$ |
| $\$ 539,900$ | and over | $35 \%$ |

If your filing status is Head of Household

| Taxable Income |  |  |
| ---: | ---: | ---: |
| Over --- | But not <br> over --- | Marginal Rate |
| $\$ 0$ | $\$ 14,650$ |  |
| $\$ 14,650$ | $\$ 55,900$ | $10 \%$ |
| $\$ 55,900$ | $\$ 89,050$ | $12 \%$ |
| $\$ 89,050$ | $\$ 170,050$ | $22 \%$ |
| $\$ 170,050$ | $\$ 215,950$ | $24 \%$ |
| $\$ 215,950$ | $\$ 539,900$ | $32 \%$ |
| $\$ 539,900$ | and over | $35 \%$ |

Standard Deduction

|  | Standard Amount |  |
| :---: | :---: | :---: |
| Single | \$12,950 |  |
| Married Filing Jointly or | \$25,900 |  |
| Head of Household | \$19,400 |  |
| Married Filing Separately | \$12,950 |  |
|  | Filing Status | Additional Amount |
| Blind or age 65 or older | Single or Head of Household | $\$ 1,750$ |
| Filing Threshold |  |  |
|  | Age | Gross Income |
| Single | under 65 | \$12,950 |
|  | 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 |
| Qualifying Widow(er) | under 65 | \$25,900 |
|  | 65 or older | \$27,300 |
| Head of Household | under 65 | \$19,400 |
|  | 65 or older | \$21,150 |
| Married Filing Separately | any age | \$5 |

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

| Taxable Income |  |  |
| ---: | ---: | ---: |
| Over --- | But not <br> over --- | Marginal Rate |
| $\$ 0$ | $\$ 20,550$ | $10 \%$ |
| $\$ 20,550$ | $\$ 83,550$ | $12 \%$ |
| $\$ 83,550$ | $\$ 178,150$ | $22 \%$ |
| $\$ 178,150$ | $\$ 340,100$ | $24 \%$ |
| $\$ 340,100$ | $\$ 431,900$ | $32 \%$ |
| $\$ 431,900$ | $\$ 647,850$ | $35 \%$ |
| $\$ 647,850$ | and over | $37 \%$ |

If your filing status is Married Filing Separately

| Taxable Income |  |  |
| ---: | ---: | ---: |
| Over --- | But not <br> over --- | Marginal Rate |
| $\$ 0$ | $\$ 10,275$ |  |
| $\$ 10,275$ | $\$ 41,775$ | $10 \%$ |
| $\$ 41,775$ | $\$ 89,075$ | $12 \%$ |
| $\$ 89,075$ | $\$ 170,050$ | $22 \%$ |
| $\$ 170,050$ | $\$ 215,950$ | $24 \%$ |
| $\$ 215,950$ | $\$ 323,925$ | $32 \%$ |
| $\$ 323,925$ | and over | $35 \%$ |

Threshold for Refundable Child Tax Credit
$\ldots$ Earned Income

|  | All filers | $\$ 2,500$ |
| :--- | ---: | ---: |
| Personal Exemption |  |  |

All filers

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

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

| If your filing status is Single |  |  |
| ---: | ---: | ---: |
| Taxable Income |  |  |
| Over --- |  | But not |
|  | over --- |  |
| $\$ 0$ | $\$ 9,950$ | Marginal Rate |
| $\$ 9,950$ | $\$ 40,525$ | $10 \%$ |
| $\$ 40,525$ | $\$ 86,375$ | $12 \%$ |
| $\$ 86,375$ | $\$ 164,925$ | $22 \%$ |
| $\$ 164,925$ | $\$ 209,425$ | $24 \%$ |
| $\$ 209,425$ | $\$ 523,600$ | $32 \%$ |
| $\$ 523,600$ | and over | $35 \%$ |
|  |  | $37 \%$ |


| If your filing status is Head of Household |  |  |
| ---: | :---: | ---: |
| Taxable Income |  |  |
| Over --- | But not |  |
|  | over --- |  |
| $\$ 0$ | $\$ 14,200$ | Marginal Rate |
| $\$ 14,200$ | $\$ 54,200$ | $10 \%$ |
| $\$ 54,200$ | $\$ 86,350$ | $12 \%$ |
| $\$ 86,350$ | $\$ 164,900$ | $22 \%$ |
| $\$ 164,900$ | $\$ 209,400$ | $24 \%$ |
| $\$ 209,400$ | $\$ 523,600$ | $32 \%$ |
| $\$ 523,600$ | and over | $35 \%$ |
|  |  | $37 \%$ |


| Standard Deduction | StandardAmount |
| ---: | ---: |
| Single | $\$ 12,550$ |
| Married Filing Jointly or | $\$ 25,100$ |
| Qualifying Widow(er) | $\$ 18,800$ |
| Head of Household | $\$ 12,550$ |
| Married Filing Separately | Filing Status |


|  | Filing Status | Additional Amount |
| ---: | ---: | ---: |
| Blind or age 65 or older | Single or Head of Household |  |
|  |  | $\$ 1,700$ |
|  | Others | $\$ 1,350$ |

Filing Threshold

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

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)

| Taxable Income |  |  |
| ---: | ---: | ---: |
| Over --- | But not <br> 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

| Taxable Income |  |  |
| ---: | ---: | ---: |
| Over --- | But not <br> over --- |  |
|  |  |  |
| $\$ 0$ | $\$ 9,950$ | Marginal Rate |
| $\$ 9,950$ | $\$ 40,525$ | $10 \%$ |
| $\$ 40,525$ | $\$ 86,375$ | $12 \%$ |
| $\$ 86,375$ | $\$ 164,925$ | $22 \%$ |
| $\$ 164,925$ | $\$ 209,425$ | $24 \%$ |
| $\$ 209,425$ | $\$ 314,150$ | $32 \%$ |
| $\$ 314,150$ | and over | $35 \%$ |


| Threshold for Refundable Child Tax Credit |  |
| :--- | ---: |
|  | Earned Income |

All filers

Personal Exemption

|  |  | Amount |
| :--- | ---: | ---: |
| All filers | $\$ 0$ |  |

5353 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Gr Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı

| Wd\{deoh | Lqfrph |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qr } \\ & \text { //// ryh } \end{aligned}$ | Pdujlqdo Udwh |
| ' 3 | '</; : 8 | 431 |
| '</; : 8 | ' $73 / 458$ | 451 |
| ' $73 / 458$ | ';8/858 | 551 |
| ';8/858 | '496/633 | 571 |
| '496/633 | '53:/683 | 651 |
| '53:/683 | '84;/733 | 681 |
| '84;/733 | dqg ryhu | $6: 1$ |


| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udw |
| , 3 | '47/433 | 431 |
| '47/433 | '86/:33 | 451 |
| '86/:33 | ';8/833 | 551 |
| ';8/833 | '496/633 | 571 |
| '496/633 | '53:/683 | 651 |
| '53:/683 | '84; /733 | 68 ( |
| '84;/733 | dqg ryhu | 6: 1 |

Li |rxu ilolqj vwdwxv lv Pduulhg Ilolqj Mrlqwo| ru Txdoli|lqj
Zlgrz+hu,

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
|  | Exw qr |  |
| / Ryhu | //// ryh | Pdujlqdo Udwh |
| ' 3 | ' $4</$ : 83 | 431 |
| ' $4</$ : 83 | ';3/583 | 45 ( |
| ';3/583 | ' $4: 4 / 383$ | 551 |
| '4:4/383 | '659/933 | 571 |
| '659/933 | '747/:33 | 651 |
| '747/:33 | '955/383 | 681 |
| '955/383 | dqg ryhu | $6: 1$ |

Li $\mid r x u$ ilolqj vwdwxv lv Pduulhg Ilolqj Vhsdudwho

| wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| Exw qr |  |  |
| Ryhu | //// ryh | Pdujlqdo Udwh |


| $\prime 3$ | $\prime</ ;: 8$ | $43($ |
| ---: | ---: | :--- |
| $\prime</ ;: 8$ | $\prime 73 / 458$ | $45($ |
| $' 73 / 458$ | $\prime ; 8 / 858$ | $55($ |
| $' ; 8 / 858$ | $\prime 496 / 633$ | $57($ |
| $' 496 / 633$ | $\prime 53: / 683$ | $65($ |
| $' 53: / 683$ | $\prime 644 / 358$ | $68($ |
| $' 644 / 358$ | dq9 ryhu | $6:($ |

Vwdqgdug Ghgxfwlrq
$\xlongequal[\text { Wkuhvkrog iru Uhixqgdeoh Fklog Wd\{ Fuhglw }]{\text { Hduqhg Lqfrl }}$

| Doo il | '5/83 |
| :--- | :--- |


| Shuvrqdo H\{hpswlrq | Dprxqw |
| :--- | :--- |

Doo ilohuv $\quad 13$


Vrxufl= LUV Uhyhqxh Surfhgxuh 4<077/ dffhvvhg Pduf
kwwsv=22zzz1luv1jry2sxe2luv0qurs2us04<0771sgi

80Dxj04<
$534<$ Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Ghgxfwlrqv/ Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkuhvkrogv



Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj vhsdudwho|


Wkuhvkrog iru Uhixqgdeoh Fklog Wd

|  | Wkuhvkrc |
| ---: | ---: | ---: |
| Doo krxvhkr | $\prime 5 / 83$ |

Vrxufh= LUV Uhyhqxh Surfhgxuh 4;08:/ dffhvvhg Dxjxvw 8/534< kwwsv=22zzz1luv1 1 ry2sxe2luv0gurs2us(

534; Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Ghgxfwlrqv/ Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkuhvkrogv



Li $\mid r x u$ ilolqj vwdwxv lv Pduulhg ilolqj vhsdudwho|


Wkuhvkrog iru Uhixqgdeoh Fklog Wd

|  | Wkuhvkrc |  |
| :--- | ---: | ---: |
|  | Doo krxvhkr | $\prime 5 / 83$ |

Vrxufh= Wd\{ Fxwv dqg Mrev Dfw
kwws=22grfv1krxvh1jry2eloovwklvzhhn2534:454;2FUSW0448K

534: Lqglylgxdo Lqfrph wd\{ Udwhv/ Vwdqgdug Ghgxfwlrqv/
Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkuhvkrogv


Vrxufh= LUV Uhyhqxh Surfhugxuh/ dffhvvhg rq Ghfhpehu 49wk/ 5349
kwwsv=22zzz1luv1jry2sxe2luv0gurs2us(

5349 Lqglylgxdo Lqfrph wd\{ Udwhv/ Vwdqgdug Ghgxfwlrqv/
Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkuhvkrogv


Vrxufh= Wd\{ Irxqgdwlrq/ grzqordghg Rfwrehu 48/5348 iurp=
kwws=22wd\{irxqgdwlrq1ruj2duwlfoh253490

4;0Vhs047

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


Vrxufh= Eorrpehuj EQD 5348 Surmhfwhg Wd\{ Udwhv/ grzqordghg Vhswhpehu 4;/ 5347 iurp $\underline{k w w s=22 e q d l q i r 1 e q d 1 f r p 2 s g i 534724483: ~ b 5348 b S u r m h f w h g b W d ~}$

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



| $\prime 3$ | $\prime 4 ; / 483$ | $43($ |
| ---: | :---: | :---: |
| $' 4 ; / 483$ | $\prime: 6 / ; 33$ | $48($ |
| $\prime: 6 / ; 33$ | $\prime 47 ; / ; 83$ | $58($ |
| $' 47 ; / ; 83$ | $\prime 559 / ; 83$ | $5 ;($ |
| $' 559 / ; 83$ | $\prime 738 / 433$ | $66($ |
| $\prime 738 / 433$ | $\prime 78: / 933$ | $68($ |
| $\prime 78: / 933$ | dqg ryhu | $6<19($ |

$\underline{\underline{L i} \quad \text { rxu ilolqj vwdwxv lv Pduulhg ilolqj vhsdudwho| }}$
Wd\{deoh Lqfrph
Exw qr
/ Ryhu 000 //// ryhu 0 © dujlqdo Udwh

| $\prime 3$ | $'</ 3: 8$ | $43($ |
| ---: | ---: | ---: |
| $'</ 3: 8$ | $\prime 69 /<33$ | $48($ |
| $' 69 /<33$ | $\prime: 7 / 758$ | $58($ |
| $': 7 / 758$ | $\prime 446 / 758$ | $5 ;($ |
| $' 446 / 758$ | $\prime 535 / 883$ | $66($ |
| $' 535 / 883$ | $' 55 ; / ; 33$ | $68($ |
| $' 55 ; / ; 33$ | dq9 ryhu | $6<19($ |

Vwdqgdug Ghgxfwlrq iru Ghshqg

| Juhdwhu ri '4333 ru vxp ri <br> hduqhg lqfrph | 683 dqg l |
| :--- | :--- |
| Shuvrqdo H\{hpswlrq | $\prime 6 /<83$ |
|  |  |
| Wkuhvkrog iru Uhixqgc |  |
| Fklog Wd\{ Fuhglw |  | hduqhg lqfrph

Shuvrqdo H\{hpswlrq $\quad$ '6/<83

Wkuhvkrog iru Uhixqgc
Fklog Wd\{ Fuhglw '6/333

|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| Vlqjc | '9/53 | '4/88 |
| Pduulhg ils |  |  |
| mrlqwo\| | '45/733 | '4/533 |
| Khdg r: |  |  |
| Krxvhkrog | '</433 | '4/883 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '9/533 | '4/533 |

Ilolqj Wkuhvk

|  |  | Qxpehu ri Eolqg 2 Hoghuo | H\{hpswlrqv |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 |  |
| Vlqjoh | $43 / 483$ | $44 /: 33$ | $46 / 583$ |  |  |
| Khdg ri Krxvhkrog | $46 / 383$ | $47 / 933$ | $49 / 483$ |  |  |
| Pduulhg ilolqj mrlqwo | $53 / 633$ | $54 / 833$ | $55 /: 33$ | $56 /<33$ | $58 / 433$ |

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 5346068/ grzqordghg Iheuxdu| :/ 5347 iurp kwws=22zzz1luv1jry2sxe2luv0gurs2usc

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


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

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

Li $\mid r x u$ ilolqj vwdwxv lv Vlqjoh

| Wd\{deoh Lqfrph |  | Pdujlqdo Udwh |  |
| :---: | :---: | :---: | :---: |
| / Ryhu | Exw qr //// ryh |  |  |
| ' 3 | '; /:33 | 431 |  |
| ';/:33 | '68/683 | 48 ( |  |
| '68/683 | ';8/983 | 581 |  |
| ';8/983 | ' 4 :; /983 | 5; |  |
| ' 4 : ; / 983 | '6; ; /683 | 661 |  |
| '6; ;/683 | dqg ryhu | 681 |  |

$\underline{\underline{L i}} \begin{aligned} & \text { rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog }\end{aligned}$

| Wd\{deoh Lqfrph |  | Pdujlqdo | Udwh |
| :---: | :---: | :---: | :---: |
|  | Exw qr |  |  |
| / Ryhu | //// ryh |  |  |
| ' 3 | '45/733 | 431 |  |
| '45/733 | '7:/683 | 481 |  |
| ' 7:/683 | '455/633 | 581 |  |
| '455/633 | ' $4<$; / 383 | $5 ; 1$ |  |
| ' $4<$; / 383 | '6; ;/683 | 661 |  |
| '6; ;/683 | dqg ryhu | 681 |  |

Vwdqgdug Ghgxfwl

|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| Vlqjc | ' $8 /<83$ | '4/78 |
| Pduulhg ilc |  |  |
| mrlqwo\| | $\prime 44 /<33$ | $' 4 / 483$ |
| Khdg r: |  |  |
| Krxvhkrog | ';/:33 | $' 4 / 783$ |
| Pduulhg ilc |  |  |
| vhsdudwho\| | ' $8 /<83$ | '4/483 |

Li $\mid r x u$ ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo|

| Wd\{deoh Lqfrph |  | Pdujlqdo | Udwh |
| :---: | :---: | :---: | :---: |
|  | Exw qr |  |  |
| / Ryhu | //// ryh |  |  |
| , 3 | '4:/733 | 431 |  |
| '4:/733 | ':3/:33 | 481 |  |
| ':3/:33 | '475/:33 | 581 |  |
| '475/:33 | '54:/783 | 5; |  |
| '54:/783 | '6; ; /683 | 661 |  |
| '6; ;/683 | dqg ryhu | 681 |  |

Li $\mid r x u$ ilolqj vwdwxv lv Pduulhg ilolqj vhsdudwho|

| Wd\{deoh Lqfrph |  |  |  |
| :---: | :---: | :---: | :---: |
| / Ryhu | Exw qr |  |  |


| $\prime 3$ | $\prime ; /: 33$ | $43($ |
| ---: | ---: | ---: |
| $' ; /: 33$ | $\prime 68 / 683$ | $48($ |
| $' 68 / 683$ | $\prime: 4 / 683$ | $58($ |
| $\prime: 4 / 683$ | $\prime 43 ; /: 58$ | $5 ;($ |
| $' 43 ; /: 58$ | $\prime 4<7 / 4: 8$ | $66($ |
| $' 4<7 / 4: 8$ | dqg ryhu | $68($ |

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

Shuvrqdo H\{hpswlrq '6/;33

Wkuhvkrog iru Uhixqgdeoh
wd\{ Fuhglw
'6/333

Ilolqj Wkuhvk

|  |  | Qxpehu ri Eolqg | 2 | Hoghuo | H\{hpswlrqv |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Vlqjoh | 3 | 4 | 5 | 6 |  |
| Khdg ri Krxvhkrog | $45 / 83$ | $44 / 533$ | $45 / 983$ |  |  |
| Pduulhg ilolqj mrlqwo | $4</ 833$ | $56 /<83$ | $48 / 733$ |  |  |

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 5344085/ grzqordghg Mdqxdu| $43 / 5345$ iurp $\underline{k w w s=22 z z z 1 l u v 1 j r y 2 s x e 2 l u v 0 q u r s 2 u s C ~}$

Li $\mid r x u$ ilolqj vwdwxv lv Vlqjoh

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw } \mathrm{qr} \\ & \text { //// ryh } \end{aligned}$ | Pdujlqdo Udw |
| '3 | ';/833 | 431 |
| ';/833 | '67/833 | 48 ( |
| '67/833 | ';6/933 | 58 ( |
| ';6/933 | '4:7/733 | 5; |
| '4:7/733 | ' 6: </483 | 661 |
| '6:</483 | dqg ryhu | 681 |

Li $\mid r x u$ ilolqj vwdwxv lv Khdg ri Krxvhkrog

| Wd\{deoh Lqfrph |  | Pdujlqdo |
| :---: | :---: | :---: |
|  | Exw qr |  |
| / Ryhu | //// ryh |  |
| '3 | '45/483 | 431 |
| '45/483 | ' 79/583 | 48 ( |
| '79/583 | '44</733 | 581 |
| ' $44</ 733$ | '4<6/683 | $5 ; 1$ |
| ' $4<6 / 683$ | ' 6: </483 | 661 |
| ' 6:</483 | dqg ryhu | 681 |

Vwdqgdug Ghgxfwl

|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| vlqjc | '8/;3ミ | '4/78ミ |
| Pduulhg ilc |  |  |
| mrlqwo\| | '44/933 | '4/483 |
| Khdg r: |  |  |
| Krxvhkrog | ';/833 | '4/783 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '8/;33 | '4/483 |

Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo|

| Wd\{deoh Lqfrph |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Exw qr |  |  |  |  |
| / Ryhu | //// ryh | Pdujlqdo Udwh |  |  |  |
| 3 |  |  |  | $\prime 4: / 333$ | $43($ |
| $\prime 4: / 333$ | $\prime 9</ 333$ | $48($ |  |  |  |
| $\prime 9</ 333$ | $\prime 46</ 683$ | $58($ |  |  |  |
| $\prime 46</ 683$ | $\prime 545 / 633$ | $5 ;($ |  |  |  |
| $\prime 545 / 633$ | $\prime 6:</ 483$ | $66($ |  |  |  |
| $\prime 6:</ 483$ | dqg ryhu | $68($ |  |  |  |

$\underline{\underline{\text { Li }} \text { rxu ilolqj vwdwxv lv Pduulhg ilolqj }}$ vhsdudwho|

| Wd\{deoh Lqfrph |  |  |  |
| :---: | :---: | :---: | :---: |
| / Ryhu | Exw qr |  |  |


| $\prime 3$ | $\prime ; / 833$ | $43($ |
| ---: | ---: | ---: |
| $\prime ; / 833$ | $\prime 67 / 833$ | $48($ |
| $\prime 67 / 833$ | $\prime 9</ 9: 8$ | $58($ |
| $\prime 9</ 9: 8$ | $\prime 439 / 483$ | $5 ;($ |
| $\prime 439 / 483$ | $\prime 4 ;</ 8: 8$ | $66($ |
| $\prime 4 ;</ 8: 8$ | dqg ryhu | $68($ |

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

Shuvrqdo H\{hpswlrq '6/:33

Wkuhvkrog iru Uhixqgdeoh
Wd\{ Fuhglw '6/333

Ilolqj Wkuhvk

|  |  | Qxpehu ri Eolqg 2 | Hoghuo | H\{hpswlrqv |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :--- |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqjoh | $</ 833$ | $43 /<83$ | $45 / 733$ |  |  |
| Khdg ri Krxvhkrog | $45 / 533$ | $46 / 983$ | $48 / 433$ |  |  |
| Pduulhg ilolqj mrlqwo | $4</ 333$ | $53 / 483$ | $54 / 633$ | $55 / 783$ | $56 / 933$ |

Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 5344045/ grzqordghg Mdqxdu| 47/ 5344 iurp kwws=22zzz1luv1jry2sxe2luv0gurs2us0


Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 533<083/ grzqordghg Rfwrehu 54/ 533< iurp kwws=22zzz1luv1jry2sxe2luv0gurs2us0
Qrwh= Vhh kwws=22zzzlwd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzzlwd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@8;3 iru fklog0ur.


Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 533;099/ grzqordghg Qryhpehu 6/ 533; iurp kwws=22zzz1luv1jry2sxe2luv0gurs2us03;0991sgi> K1U1 4/ Dphulfdq Uhfryhu| dqg Uhl، Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@8;3 iru fklogouh

> 533; Lqglylgxdo Lqfrph wd\{ Udwhv/ Vwdqgdug Gł Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı


Vrxufh= Lqwhuqdo Uhyhqxh Vhuylfh/ Uhyhqxh Surfhgxuh 533:099/ grzqordghg Qryhpehu 4/ 533: iurp kwws=22zzz1luv1jry2sxe2luv0gurs2us
Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86< iru
kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@8;3 iru fklog0uh


5339 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G: Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı



|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| Vlqjc | '8/48三 | '4/58 |
| Pduulhg ilc |  |  |
| mrlqwo\| | '43/633 | '4/333 |
| Khdg r: |  |  |
| Krxvhkrog | ':/883 | '4/583 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '8/483 | '4/333 |
| Shuvrqdo H\{hps |  | '6/63 |


|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\{1pxp |
|  | Skdvhrxw | Skdvhrxw |
| Vlqjc | '483/83: | '5:6/33: |
| Pduulhg ilc |  |  |
| mrlqwo\| | '558/:83 | '67;/583 |
| Khdg r: |  |  |
| Krxvhkrog | '4; ;/483 | '643/983 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '445/;:8 | '4:7/458 |



Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

| Wd\{deoh Lqfrph |  | Pdujlqdo Udwh |
| :---: | :---: | :---: |
|  | Exw qr |  |
| / Ryhu | //// ryh |  |
| '3 | ':/88 | 431 |
| ':/88 | '63/98 | 48 ( |
| '63/98 | '94/;8 | 58 ( |
| '94/; 8 | '<7/55 | $5 ; 1$ |
| '<7/55 | '49;/5: | 661 |
| '49;/5: | dqg ryr. | 681 |

Skdvhrxw ri Lwhpl\}hg Ghgx:
Pduulhg ilolqj vhsdudwho| ':8/583
Doo rwkl '483/83:

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

Wkuhvkrog iru Uhixqgdeoh Fklog wd '44/63


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

5338 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G: Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı

| Wd\{deoh Lqfrph |  |  |  |
| :---: | :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo | Udwh |
| , 3 | ':/63 | 431 |  |
| ':/63 | '5</: 3 | 481 |  |
| '5</: 3 | ': $4 /<8$ | 58 ( |  |
| ' $: 4 /<8$ | '483/48 | 5; |  |
| '483/48 | '659/78 | 661 |  |
| '659/78 | dqg ryr. | 681 |  |


Vwdqgdug Ghgxfwl

|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| Vlqjc | '8/33 | '4/58ミ |
| Pduulhg ilc |  |  |
| mrlqwo\| | '43/333 | '4/333 |
| Khdg r: |  |  |
| Krxvhkrog | ':/633 | '4/583 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '8/333 | '4/333 |
| Shuvrqdo H\{hps |  | '6/53 |


|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\{1pxp |
|  | Skdvhrxw | Skdvhrxw |
| Vlqjc | '478/<8: | '59;/78: |
| Pduulhg ilc |  |  |
| mrlqwo\| | '54; / $<83$ | '674/783 |
| Khdg r: |  |  |
| Krxvhkrog | '4;5/783 | '637/<83 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '43</7:8 | '4:3/:58 |



Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

| Wd\{deoh Lqfrph |  | Pdujlqdo | Udwh |
| :---: | :---: | :---: | :---: |
|  | Exw qr |  |  |
| / Ryhu | //// ryh |  |  |
| , 3 | ':/63 | 431 |  |
| ':/63 | ' $5</: 3$ | 48 ( |  |
| '5</: 3 | ' $8</$ < | 58 ( |  |
| ' $8</$ < | '<4/73 | 5; |  |
| '<4/73 | '496/55 | 661 |  |
| '496/55 | dqg ryr. | 68 ( |  |

Skdvhrxw ri Lwhpl\}hg Ghgx:
Pduulhg ilolqj vhsdudwho| $\quad$ ':5/<:8
Doo rwk] $\quad, 478 /<8$;

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv
Juhdwhu ri ';33 ru vxp ri '
lqglylgxdo*v hduqhg lqfrph

Wkuhvkrog iru Uhixqgdeoh Fklog wd '44/33

## Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H\{h |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | ;/53. | </78 | 43/: 3 |  |  |
| Khdg ri Krxvhkr | 43/83 | 44/:8 | 46/33 |  |  |
| Pduulhg ilolqj i | 49/73 | 4:/73 | 4;/73 | $4</ 73$ | 53/73 |

[^0]Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzz1wd\{srolf|fhqwhu1ruj2wd\{idfwv2glvsod|didfw1fipBGrflg@8;3 iru fklog0uh

5337 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G: Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı



Vwdqgdug Ghgxfwl

|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| Vlqjc | '7/;8ミ | '4/53 |
| Pduulhg ilc |  |  |
| mrlqwo\| | '</:33 | '<83 |
| Khdg r: |  |  |
| Krxvhkrog | ':/483 | '4/533 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | 17/;83 | '<83 |
| Shuvrqdo H\{hps |  | '6/43 |

Skdvhrxw ri Shuvrqdo $\mathrm{H}\{\mathrm{hps}$


Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

| Wd\{deoh Lqfrph |  | Pdujlqdo Udw |
| :---: | :---: | :---: |
|  | Exw qr |  |
| / Ryhu | //// ryh |  |
| , 3 | ':/48 | 431 |
| ':/48 | ' $5</ 38$ | 48 ( |
| ' $5</ 38$ | '8;/95 | 58 ( |
| '8;/95 | '; </65 | 5; |
| '; </65 | ' $48</ 88$ | 661 |
| ' $48</ 88$ | dqg ryr. | 68 ( |

Skdvhrxw ri Lwhpl\}hg Ghgx:

| Pduulhg ilolqj vhsdudwho\| | ':4/683 |
| :---: | :---: |
| Doo rwk] | '475/:3 |

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri ';33 ru vxp ri '
lqglylgxdo*v hduqhg lqfrph

Wkuhvkrog iru Uhixqgdeoh Fklog wd '43/: 8

Ilolqj Wkuhvk


[^1]Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfwlfipBGrflg@8;3 iru fklog0uh

5336 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G] Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı



|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| Vlqjoh | '7/:83 | '4/483 |
| Pduulhg ilc |  |  |
| mrlqwo\| | '</833 | '<83 |
| Khdg r |  |  |
| Krxvhkrog | ':/333 | '4/483 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '7/:83 | '<83 |
| Shuvrqdo H\{hps |  | '6/38 |



Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | Exw qr |  |


| $\prime 3$ | $\prime: / 33$ | $43($ |
| ---: | ---: | ---: |
| $\prime: / 33$ | $\prime 5 ; / 73$ | $48($ |
| $\prime 5 ; / 73$ | $\prime 8: / 65$ | $58($ |
| $\prime 8: / 65$ | $\prime ;: / 68$ | $5 ;($ |
| $\prime ;: / 68$ | $\prime 488 /<:$ | $66($ |
| $\prime 488 /<:$ | dqg ryb. | $68($ |

$$
\text { Skdvhrxw ri Lwhpl\}hg Ghgx: }
$$

Pduulhg ilolqj vhsdudwho| '9</:83
Doo rwkhuv , $46</ 833$

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

Wkuhvkrog iru Uhixqgdeoh Fklog wd '43/83

|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\{lpxp |
|  | Skdvhrxw | Skdvhrxw |
| Vlqjc | '46</83: | '595/33: |
| Pduulhg ilc |  |  |
| mrlqwo | $\prime 53</ 583$ | '664/:83 |
| Khdg r: |  |  |
| Krxvhkrog | '4:7/733 | '5<9/<33 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '437/958 | '498/; 8 |

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H\{h |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqjc | :/ ; 3 | ; / < 8 | 43/43 |  |  |
| Khdg ri Krxvhkr | 43/38 | 44/53 | 45/68 |  |  |
| Pduulhg ilolqj i | 48/93 | 49/88 | 4:/83 | 4;/78 | $4</ 73$ |

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

## 5335 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wk




$\xlongequal{\text { Skdvhrxw ri Shuvrqdo H\{hps }}$


[^2]Qrwh= Vhh kwws=22zzzlwd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86< iru kwws=22zzz1wd\{srolf|fhqwhu1ruj2wd\{idfwv2glvsod|didfw1fipBGrflg@8;3 iru fklog0uh

5334 Lqglylgxdo Lqfrph Wd\｛ Udwhv／Vwdqgdug G］ Shuvrqdo H\｛hpswlrqv／dqg Ilolqj Wk


| Wd\｛deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| ／Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udwh |
| ＇3 | ＇78／53 | 48131 |
| ＇78／53 | ＇ $43</ 58$ | 5：181 |
| ＇ $43</ 58$ | ＇499／83 | 63181 |
| ＇499／83 | ＇5＜：／68 | 68181 |
| ＇5＜：／68 | dqg ryt． | $6<14$（ |

Li｜rxu ilolqj vwdwxv lv Pdu

| Wd\｛deoh Lqfrph |  |  |
| :---: | :---: | :---: |
|  | Exw qr |  |
| ／Ryhu | ／／／／ryh | Pdujlqdo |
| ， 3 | ＇69／58 | 48131 |
| ＇69／58 | ＇＜6／98 | 5：181 |
| ＇＜6／98 | ＇484／98 | 63181 |
| ＇484／98 | ＇5＜：／68 | 68181 |
| ＇ $5<$ ：／68 | dqg ryr． | $6<14$（ |

vhsdudwho

| Wd\｛deoh Lqfrph |  | Pdujlqdo Udwh |
| :---: | :---: | :---: |
|  | Exw qr |  |
| ／Ryhu | ／／／／ryh |  |
| ＇ 3 | ＇55／93 | 48131 |
| ＇55／93 | ＇87／95 | 5：181 |
| ＇87／95 | ＇；6／58 | 63181 |
| ＇；6／58 | ＇47；／9： | 68181 |
| ＇47；／9： | dqg ryr． | $6<14$（ |

Vwdqgdug Ghgxfwl

|  | Vwdqgdu | Eolqg2Hogr． |
| :---: | :---: | :---: |
| Vlqjc | ＇7／88 | ＇4／43 |
| Pduulhg ilc |  |  |
| mrlqwo｜ | ＇：／933 | ＇＜33 |
| Khdg r ： |  |  |
| Krxvhkro | ＇9／98ミ | ＇4／43三 |
| Pduulhg ilc |  |  |
| vhsdudwh | 16／； 3 三 | ＇＜33 |
| Shuvrqdo H\｛hps |  | ＇5／＜3 |

Skdvhrxw ri Lwhpl\}hg Ghgx:
Pduulhg ilolqj vhsdudwho｜＇99／7：
Doo rwkl＇465／＜8：

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

Shuvrqdo H\｛hpswl $\quad$ 5／＜
Wkuhvkrog iru Uhixqgdeoh Fklog Wd ＇43／33
Skdvhrxw ri Shuvrqdo H\｛hps

|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\｛lpxp |
|  | Skdvhrx | Skdvhrx |
| Vlqje | ＇465／＜85 | ＇588／78： |
| Pduulhg ilc |  |  |
| mrlqu | ＇4＜＜／78： | ＇654／＜8： |
| Khdg r： |  |  |
| Krxvhkro | ＇499／53： | ＇5；；／3： |
| Pduulhg ilc |  |  |
| vhsdudwh | ＇＜＜／： 5 \＆ | ＇493／＜： |


|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H\｛1． |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | ：／78 | ；／88 | ＜／98 |  |  |
| Khdg ri Krxvhkr | ＜／88 | 43／98 | 44／： 8 |  |  |
| Pduulhg ilolqj 1 | $46 / 73$ | 47／63 | 48／53 | 49／43 | 4：／33 |

Vrxufh＝Lqvwuxfwlrqv iru Irup 4373／Lqwhuqdo $\mathbb{C}$
Qrwh＝Vhh kwws＝22zzz1wd\｛srolf｜fhqwhulruj2wd\｛idfwv2glvsod｜didfw1fipBGrfLG＠86＜iru kwws＝22zzz1wd\｛srolf｜fhqwhulruj2wd\｛idfwv2glvsod｜didfw1fipBGrflg＠8；3 iru fklog0uh

5333 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G] Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qr } \\ & \text { //// ryh } \end{aligned}$ | Pdujlqdo |
| , 3 | '59/58 | 48131 |
| '59/58 | '96/88 | 5;131 |
| '96/88 | '465/93 | 64131 |
| '465/93 | '5; $/ 68$ | 69131 |
| '5; ;/68 | dqg ryb. | $6<19$ ( |




Li |rxu ilolqj vwdwxv lv Pdu vhsdudwhol

| Wd\{deoh Lqfrph |  | Pdujlqdo Udwh |
| :---: | :---: | :---: |
|  | Exw qr |  |
| / Ryhu | //// ryh |  |
| , 3 | '54/<5 | 48131 |
| '54/<5 | '85/<: | 5;131 |
| '85/<: | ';3/:5 | 64131 |
| ';3/:5 | '477/4: | 69131 |
| '477/4: | dqg ryr. | $6<19$ ( |


|  | Vwdqgdug | Eolqg2Hoghuo |
| :---: | :---: | :---: |
| Vlqjc | '7/73ミ | '4/43 |
| Pduulhg ilc |  |  |
| mrlqwo\| | ':/683 | '; 83 |
| Khdg r: |  |  |
| Krxvhkrog | '9/783 | '4/433 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '6/9:8 | ';83 |


| Skdvhrxw ri Shuvrqdo H\{hps |  |  | Shuvrqdo H\{hpswl | '5/;3 |
| :---: | :---: | :---: | :---: | :---: |
| DJL |  |  |  |  |
|  | Ehjlqqlqj | Pd\{1pxp |  |  |
|  | Skdvhrxw | Skdvhrxw |  |  |
| Vlqje | '45; / < ${ }^{\text {a }}$ | '584/78: |  |  |
| Pduulhg ilc |  |  |  |  |
| mrlqwo\| | ' $4<6 / 733$ | '648/<33 |  |  |
| Khdg r: |  |  |  |  |
| Krxvhkrog | '494/483 | '5;6/983 |  |  |
| Pduulhg ilc |  |  |  |  |
| vhsdudwho\| | '<9/:33 | '48:/<83 |  |  |
| Ilolqj Wkuhvk |  |  |  |  |


|  | Qxpehu ri Eolqg 2 Hoghuo\| |  |  | H\{h |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | :/53 | ;/63 | </73 |  |  |
| Khdg ri Krxvhkr | </58 | 43/68 | 44/78 |  |  |
| Pduulhg ilolqj i | 45/<8 | 46/;3 | 47/98 | 48/83 | 49/68 |

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

$$
\begin{aligned}
4 \lll & \text { Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Gr } \\
& \text { Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı }
\end{aligned}
$$



Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo $\mathbb{C}$
Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86<
$4 \ll ; ~ L q g l y l g x d o ~ L q f r p h ~ W d\{~ U d w h v / ~ V w d q g d u g ~ G] ~$

Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wk



Vwdqgdug Ghgxfwl

|  | Vwdqgdu | Eolqg2Hogr. |
| :---: | :---: | :---: |
| Vlqje | '7/58 | '4/38 ${ }^{\text {² }}$ |
| Pduulhg ilc |  |  |
| mrlqwo\| | ':/433 | '; 83 |
| Khdg r: |  |  |
| Krxvhkro | '9/58 | '4/38 |
| Pduulhg ilc |  |  |
| vhsdudwh | '6/88 | ';83 |


| vhsdudwh | '6/88 | '; 83 |
| :---: | :---: | :---: |
| Skdvhrxw ri Shuvrqdo H\{hps |  |  |
| DJL |  |  |
|  | Ehjlqqlqj | Pd\{lpxp |
|  | Skdvhrx | Skdvhrx |
| Vlqje | '457/83: | '57:/33: |
| Pduulhg ilc |  |  |
| mrlqu | '4;9/;3: | ' $63</ 63$ : |
| Khdg r: |  |  |
| Krxvhkro! | '488/98: | '5:;/48 |
| Pduulhg ilc |  |  |
| vhsdudwh | '<6/73 | '487/98: |


| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qr } \\ & \text { //// ryh } \end{aligned}$ | Pdujlqdo Udwh |
| ' 3 | '75/68 | 48131 |
| '75/68 | '435/63 | 5;131 |
| '435/63 | '488/<8 | 64131 |
| '488/<8 | '5:;/78 | 69131 |
| '5:;/78 | dqg ryr. | 6<19 ( |

Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho|

| Wd\{deoh | Lqfrph |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udwh |
| '3 | '54/4: | 48131 |
| '54/4: | '84/48 | 5;131 |
| '84/48 | ': / / < | 64131 |
| ': :/ < | '46</55 | 69131 |
| ' $46</ 55$ | dqg ry. | $6<19$ ( |

Skdvhrxw ri Lwhpl\}hg Ghgx:

| Pduulhg ilolqj vhsdudwho\| | '95/58 |
| :---: | :---: |
| Doo rwk] | '457/83 |

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

Shuvrqdo H\{hpswl '5/:3

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H \{ , |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 9/<8. | ;/33. | </38 |  |  |
| Khdg ri Krxvhkr | ; / < 8 | 43/33 | 44/38 |  |  |
| Pduulhg ilolqj | 45/83 | 46/68 | 47/53 | 48/38 | $48 /<3$ |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo $\mathbb{i}$
Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86< :

$$
\begin{aligned}
4 \ll: & \text { Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Gr } \\
& \text { Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı }
\end{aligned}
$$



Li $\quad$ rxu ilolgj vwdwxv lv Khdg ri Krxvhkrog

| Wd\{deoh Lqfrph |  | Pdujlqdo Udw |
| :---: | :---: | :---: |
|  | Exw qr |  |
| / Ryhu | //// ryr. |  |
| '3 | '66/38 | 48131 |
| '66/38 | ';8/68 | 5;131 |
| ';8/68 | '46;/53 | 64131 |
| '46;/53 | '5:4/38 | 69131 |
| '5:4/38 | dqg ryr. | $6<19$ ( |


|  | Vwdqgdu | Eolqg2Hogr. |
| :---: | :---: | :---: |
| Vlqje | '7/483 | '4/33 |
| Pduulhg ils |  |  |
| mrlqwo\| | '9/<33 | ';33 |
| Khdg r: |  |  |
| Krxvhkro | '9/383 | '4/33 |
| Pduulhg ilc |  |  |
| vhsdudwh | 16/783 | ';33 |


|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\{1pxp |
|  | Skdvhrx | Skdvhrx |
| Vlqje | '454/53 | '576/:3 |
| Pduulhg ilc |  |  |
| mrlqv | '4; 4 / 3 ミ | '637/63 |
| Khdg r : |  |  |
| Krxvhkro | '484/83ミ | '5:7/33 |
| Pduulhg ilc |  |  |
| vhsdudwh | '<3/<3 | '485/48 |



Li |rxu ilolqj vwdwxv lv Pdur vhsdudwhol
$\frac{\text { Wd\{deoh Lqfrph }}{\text { Exw qr }}$
/ Ryhu //// ryr. Pdujlqdo Udwh

| $\prime 3$ | $\prime 53 / 93$ | $4813($ |
| ---: | ---: | ---: |
| $\prime 53 / 93$ | $\prime 7</ ; 3$ | $5 ; 13($ |
| $\prime 7</ ; 3$ | $\prime: 8 / ;:$ | $6413($ |
| $\prime: 8 / ;:$ | $\prime 468 / 85$ | $6913($ |
| $\prime 468 / 85$ | dqg rył | $6<19($ |

Skdvhrxw ri Lwhpl\}hg Ghgxy

| Pduulhg ilolqj vhsdudwhol | '93/93: |
| :--- | ---: |
| Doo rwkl |  |

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '983 ru lqglylgxdo lqfrph

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo\| |  |  | H\{1. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 9/;3 | :/;3: | ;/;3: |  |  |
| Khdg ri Krxvhkr | ; / 3 | </ 3 3. | 43/:3 |  |  |
| Pduulhg ilolqj 1 | 45/53 | 46/33 | 46/;3 | 47/93 | 48/73 |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo $\mathbb{C}$
Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86<
$4 \ll 9$ Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G]
Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wk

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udwh |
| '3 | '57/33 | 48131 |
| '57/33 | '8; /48 | 5;131 |
| '8;/48 | '454/63 | 64131 |
| '454/63 | '596/:8 | 69131 |
| '596/:8 | dqg ryk. | $6<19$ ( |



Vwdqgdug Ghgxfwl

|  | Vwdqgdu | Eolqg2Hogr. |
| :---: | :---: | :---: |
| Vlqjc | '7/33 | '4/33 |
| Pduulhg ilc |  |  |
| mrlqwo\| | '9/:33 | ';33 |
| Khdg r: |  |  |
| Krxvhkro | ' $8 /<3$ ¢ | '4/33 |
| Pduulhg ilc |  |  |
| vhsdudwh | '6/68 | ';33 |


|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\{lpxp |
|  | Skdvhrx | Skdvhrx |
| Vlqje | '44: / < ${ }^{\text {\% }}$ | '573/78' |
| Pduulhg ilc |  |  |
| mrlqu | '4:9/<8: | ' $5 \ll / 78$ |
| Khdg r: |  |  |
| Krxvhkro | '47:/78: | ' $59</<8$ : |
| Pduulhg ils |  |  |
| vhsdudwh | '; ; 7 7 : |  |



Li |rxu ilolqj vwdwxv lv Pdu vhsdudwhol


Skdvhrxw ri Lwhpl\}hg Ghgx

| Pduulhg ilolqj vhsdudwho | $\prime 8 ; /<:\{$ |
| :--- | :--- |
| Doo rwk] |  |

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri '983 ru lqglylgxdo
lqfrph

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H \{ , |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 9/88 | :/88 | ;/88: |  |  |
| Khdg ri Krxvhkr | ;/78 | </78 | 43/78 |  |  |
| Pduulhg ilolqj | 44/; 3 | 45/93 | 46/73 | 47/53 | 48/33 |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo tं
Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86<:
$4 \ll 8$ Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Gr

Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı


Li $\quad$ rxu ilolgj vwdwxv lv Khdg ri Krxvhkrog

| wd\｛deoh Lqfrph |  | Pdujlqdo Udw |
| :---: | :---: | :---: |
|  | Exw qr |  |
| ／Ryhu | ／／／／ryr． |  |
| ＇ 3 | ＇64／58 | 48131 |
| ＇64／58 | ＇；3／：8 | 5；131 |
| ＇；3／：8 | ＇463／； 3 | 64131 |
| ＇463／； 3 | ＇589／83 | 69131 |
| ＇589／83 | dqg ryf． | $6<19$（ |


|  | Vwdqgdu | Eolqg2Hogr． |
| :---: | :---: | :---: |
| Vlqje | ＇6／＜33 | ＇＜83 |
| Pduulhg ilc |  |  |
| mrlqwo｜ | ＇9／883 | ＇：83 |
| Khdg r： |  |  |
| Krxvhkro | ＇8／：83 | ＇＜83 |
| Pduulhg ils |  |  |
| vhsdudwh | ＇6／5：$\frac{1}{}$ | ＇：83 |


|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\｛1pxp |
|  | Skdvhrx | Skdvhrx |
| Vlqje | ＇447／：3ミ | ＇56：／53 |
| Pduulhg ilc |  |  |
| mrlqv | ＇4：5／38ミ | ＇ $5<7 / 88=$ |
| Khdg r ： |  |  |
| Krxvhkro | ＇476／68三 | ＇598／； 8 ＝ |
| Pduulhg ilc |  |  |
| vhsdudwh | ＇；9／35 | ＇47：／5： |



Li｜rxu ilolqj vwdwxv lv Pduı vhsdudwhol

| Wd\｛deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| Exw qr |  |  |


| ＇ 3 | ＇ $4</ 83$ | 48131 |
| :---: | :---: | :---: |
| ＇ $4</ 83$ | ＇ $7: / 45$ | 5；131 |
| ＇7：／45 | ＇：4／；3 | 64131 |
| ＇：4／；3 | ＇45；／58 | 69131 |
| ＇45；／58 | dqg ryr． | 6＜19（ |

Skdvhrxw ri Lwhpl\}hg Ghgxy

| Pduulhg ilolqj vhsdudwho | $\prime 8: / 68$ ： |
| :--- | :--- |
| Doo rwkl | $, 447 /: 3:$ |

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri＇983 ru lqglylgxdo＇ lqfrph

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo｜ |  |  | H \｛ ， |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 9／73． | ：／68： | ；／63： |  |  |
| Khdg ri Krxvhkr | ；$/ 58$ | ＜／53 | 43／48 |  |  |
| Pduulhg ilolqj 1 | 44／88 | 45／63 | 46／38 | 46／； 3 | 47／88 |

Vrxufh＝Lqvwuxfwlrqv iru Irup 4373／Lqwhuqdo $\mathbb{C}$
Qrwh＝Vhh kwws＝22zzz1wd\｛srolf｜fhqwhulruj2wd\｛idfwv2glvsod｜didfw1fipBGrfLG＠86＜
$4 \ll 7$ Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Gr
Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı


Li $\quad$ rxu ilolgj vwdwxv lv Khdg ri Krxvhkrog

| Wd\｛deoh Lqfrph |  | Pdujlqdo |
| :---: | :---: | :---: |
| ／Ryhu | Exw qr ／／／／ryr． |  |
| ＇3 | ＇63／83 | 48131 |
| ＇63／83 | ＇：；／：3 | 5；13（ |
| ＇：；／：3 | ＇45：／83 | 64131 |
| ＇45：／83 | ＇583／33 | 69131 |
| ＇583／33 | dqg ryr． | 6＜19（ |


|  | Vwdqgdu | Eolqg2Hogr． |
| :---: | :---: | :---: |
| Vlqje | ＇6／；33 | ＇＜83 |
| Pduulhg ils |  |  |
| mrlqwo｜ | ＇9／683 | ＇：83 |
| Khdg r： |  |  |
| Krxvhkro | ＇8／933 | ＇＜83 |
| Pduulhg ilc |  |  |
| vhsdudwh | ＇6／4： | ＇：83 |


|  | DJL |  |
| :---: | :---: | :---: |
|  | Ehjlqqlqj | Pd\｛1pxp |
|  | Skdvhrx | Skdvhrx |
| Vlqje | ＇444／；3 | ＇567／63＇ |
| Pduulhg ilc |  |  |
| mrlqv | ＇49：／：3ミ | ＇ $5<3 / 53$ ¢ |
| Khdg r ： |  |  |
| Krxvhkro | ＇46＜／：8ミ | ＇595／58 |
| Pduulhg ilc |  |  |
| vhsdudwh | ＇；6／；8ミ | ＇478／43E |



Li｜rxu ilolqj vwdwxv lv Pdur vhsdudwhol

| Wd\｛deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| Exw qr |  |  |
| ／Ryhu | $/ / / /$ ry．$\quad$ Pdujlqdo Udwh |  |


| ， 3 | ＇ $4</ 33$ | 48131 |
| :---: | :---: | :---: |
| ＇ $4</ 33$ | ＇78／＜5 | 5；131 |
| ，78／＜5 | ＇：3／33 | 64131 |
| ＇：3／33 | ＇458／33 | 69131 |
| ＇458／33 | dqg ryr． | 6＜19（ |

Skdvhrxw ri Lwhpl\}hg Ghgxy

| Pduulhg ilolqj vhsdudwho｜ |  |
| :--- | :--- |
| Doo rwkl |  |

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv Juhdwhu ri＇933 ru lqglylgxdo lqfrph

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H\｛1． |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 9／58． | ：／53： | ；／48： |  |  |
| Khdg ri Krxvhkr | ；／38 | ＜／33 | ＜／＜8 |  |  |
| Pduulhg ilolqj | 44／58 | 45／33 | 45／： 8 | 46／83 | 47／58 |

Vrxufh＝Lqvwuxfwlrqv iru Irup 4373／Lqwhuqdo $\mathbb{C}$
Qrwh＝Vhh kwws＝22zzz1wd\｛srolf｜fhqwhulruj2wd\｛idfwv2glvsod｜didfw1fipBGrfLG＠86＜

$$
\begin{aligned}
4 \ll 6 & \text { Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug G] } \\
& \text { Shuvrqdo } H\{\text { hpswlrqv/ dqg Ilolqj Wk }
\end{aligned}
$$

| Wd\{deoh Lqfrph |  |  |  |
| :---: | :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qr } \\ & \text { //// ryh } \end{aligned}$ | Pdujlqdo | Udwh |
| , 3 | '55/43 | 48131 |  |
| '55/43 | '86/83 | 5;131 |  |
| '86/83 | '448/33 | 64131 |  |
| '448/33 | '583/33 | 69131 |  |
| '583/33 | dqg ryf. | $6<19$ ( |  |


| Wd\{deoh Lqfrph |  |  |  |
| :---: | :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo | Udwh |
| '3 | '69/<3 | 48131 |  |
| '69/<3 | '; </48 | 5;131 |  |
| '; </48 | '473/33 | 64131 |  |
| '473/33 | '583/33 | 69131 |  |
| '583/33 | dqg ryf. | $6<19$ ( |  |


| Wd\{deoh Lqfrph |  | Pdujlqdo Udwh |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qr } \\ & \text { //// ryh } \\ & \hline \end{aligned}$ |  |
| ' 3 | '5</93 | 48131 |
| '5</93 | ':9/73 | 5;131 |
| ':9/73 | '45:/83 | 64131 |
| '45:/83 | '583/33 | 69131 |
| '583/33 | dqg ryf. | $6<19$ ( |
| Vwdqgdug Ghgxfwl |  |  |
|  | Vwdqgdu | Eolqg2Hogr. |
| Vlqjc | '6/:3ミ | '<33 |
| Pduulhg ilc |  |  |
| mrlqwo\| | '9/533 | ':33 |
| Khdg r: |  |  |
| Krxvhkro | '8/78 | '<33 |
| Pduulhg ilc |  |  |
| vhsdudwh | '6/43 | ':33 |

Li |rxu ilolqj vwdwxv lv Pdu vhsdudwho

| Wd\{deoh | Lqfrph |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qr } \\ & \text { //// ryh } \end{aligned}$ | Pdujlqdo U |
| ' 3 | '4;/78 | 48131 |
| '4; /78 | '77/8: | 5;131 |
| '77/8: | ':3/33 | 64131 |
| ':3/33 | '458/33 | 69131 |
| '458/33 | dqg ryr. | $6<19$ ( |

Skdvhrxw ri Lwhpl\}hg Ghgx:

| Pduulhg ilolqj vhsdudwho |  |
| :--- | :--- |
| Doo rwkl |  |

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

Shuvrqdo H\{hpswl

| Skdvhrxw ri Shuvrqdo H\{hps |  |  |
| :---: | :---: | :---: |
|  | DJL |  |
|  | Ehjlqqlqj | Pd\{1pxp |
|  | Skdvhrx | Skdvhrx |
| Vlqje | '43; /78: | '563/<8 |
| Pduulhg ilc |  |  |
| mrlqu | '495/:3' | '5;8/53' |
| Khdg r: |  |  |
| Krxvhkro | '468/93: | '58; /43: |
| Pduulhg ilc |  |  |
| vhsdudwh | ';4/68 | '475/93: |

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H\{t. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 9/38 | 9/<8 | : / ; 8 |  |  |
| Khdg ri Krxvhkr | :/; 3 | ;/:3 | </93 |  |  |
| Pduulhg ilolqj 1 | $43 /<3$ | 44/93 | 45/63 | 46/33 | 46/:3 |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo t
Qrwh= Vhh kwws=22zzz1wd\{srolf|fhqwhulruj2wd\{idfwv2glvsod|didfw1fipBGrfLG@86<:

```
4<<5 Lqglylgxdo Lqfrph Wd{ Udwhv/ Vwdqgdug Gl
    Shuvrqdo H{hpswlrqv/ dqg Ilolqj Wk
```

| Wd\{deoh Lqfrph |  | Pdujlqdo Udwh |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ |  |
| , 3 | '54/78 | 48131 |
| '54/78 | ' $84 /<3$ | 5;131 |
| ' $84 /<3$ | dqg ryr. | 64131 |
| Li ${ }^{\text {rxu }}$ ilolgj vwdwxv lv Khdg ri Krxvhkrog |  |  |
| Wd\{deoh Lqfrph |  |  |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udwh |
| ' 3 | '5; /:8 | 48131 |
| '5; /:8 | ':7/48 | 5;131 |
| ':7/48 | dqg ryr. | 64131 |
| Vwdqgdug Ghgxfwl |  |  |
| Vwdqgdug Eolqg2Hoghuo |  |  |
| $\begin{array}{cc}\text { Vlqjc } & \\ \text { Pduulhg il, } & \text { /93ミ }\end{array}$ |  |  |
|  |  |  |  |
| mrlqwo\| | '9/333 | ':33 |
| Khdg r: |  |  |
| Krxvhkrog | ' $8 / 583$ | $\prime<33$ |
| Pduulhg il، |  |  |
| vhsdudwho\| | '6/333 | ':33 |
| Skdvhrxw ri Shuvrqdo H\{hps |  |  |
| DJL |  |  |
| Ehjlqqlqj Pd\{lpxp <br> Skdvhrxw Skdvhrxw |  |  |
|  |  |  |  |
| Vlqje | '438/58: | '55:/:85 |
| Pduulhg ils |  |  |
| mrlqwo\| | ' 48 :/<33 | '5;3/733 |
| Khdg r: |  |  |
| Krxvhkrog | ' $464 / 883$ | '587/383 |
| Pduulhg ils |  |  |
| vhsdudwho\| | ': ;/<83 | '473/533 |



Li |rxu ilolqj vwdwxv lv Pdu vhsdudwhol

| Wd\{deoh | Lqfrph |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udwh |
| , 3 | '4:/<3 | 48131 |
| '4:/<3 | '76/58 | 5;131 |
| '76/58 | dqg ryk | 64131 |

Skdvhrxw ri Lwhpl\}hg Ghgx:

| Pduulhg ilolqj vhsdudwhol | $' 85 / 95\{$ |
| :--- | :--- |
| Doo rwk] | $\prime 438 / 58:$ |

$\frac{\text { Vwdqgdug Ghgxfwlrq iru Ghshqghqwv }}{\text { Juhdwhu ri '933 ru lqglylgxdo }}$ lqfrph

Shuvrqdo H\{hpswl '5/63

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo |  |  | H \{ , |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 8/<3: | 9/; 3: | :/ : 3 |  |  |
| Khdg ri Krxvhkr | :/88 | ;/78 | </68 |  |  |
| Pduulhg ilolqj | 43/93 | 44/63 | 45/33 | 45/:3 | 46/73 |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo $\mathbb{C}$

> 4<<4 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Gl Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wk.

| Wd\{deoh Lqfrph |  | Pdujlqdo Udwh |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ |  |
| ' 3 | '53/68 | 48131 |
| '53/68 | ' $7</ 63$ | 5;131 |
| ' $7</ 63$ | dqg ryf. | 64131 |
|  |  |  |
| Wd\{deoh Lqfrph |  |  |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udwh |
| ' 3 | '5:/63 | 48131 |
| ' 5:/63 | ':3/78 | 5;131 |
| ':3/78 | dqg ryf. | 64131 |
| Vwdqgdug Ghgxfwl |  |  |
| Vwdqgdug Eolqg2Hoghuo |  |  |
| Vlqje '6/73 <br> Pduulhg il، ;83 |  |  |
|  |  |  |  |
| mrlqwo\| | '8/:33 | ' 983 |
| Khdg r: |  |  |
| Krxvhkrog | '8/333 | '; 83 |
| Pduulhg il، |  |  |
| vhsdudwho\| | '5/;83 | '983 |
| Skdvhrxw ri Shuvrqdo H\{hps |  |  |
| DJL |  |  |
| Ehjlqqlqj Pd\{lpxp |  |  |
| Skdvhrxw |  | Skdvhrxw |
| Vlqje | '433/33' | '555/83: |
| Pduulhg ils |  |  |
| mrlqwo\| | $' 483 / 333$ | '5:5/833 |
| Khdg r: |  |  |
| Krxvhkrog | '458/333 | '57:/833 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | ':8/333 | '469/583 |



Li |rxu ilolqj vwdwxv lv Pdu vhsdudwhol

| Wd\{deoh | Lqfrph |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Pdujlqdo Udwh |
| , 3 | '4:/33 | 48131 |
| '4:/33 | '74/3: | 5;131 |
| '74/3: | dqg ryr | 64131 |

Skdvhrxw ri Lwhpl\}hg Ghgx:

| Pduulhg ilolqj vhsdudwhol |  |
| :--- | :--- |
| Doo rwk] |  |

$\frac{\text { Vwdqgdug Ghgxfwlrq iru Ghshqghqwv }}{\text { Juhdwhu ri '883 ru lqglylgxdo }}$ lqfrph
Shuvrqdo H\{hpsw1 '5/48

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 Hoghuo\| |  |  | H \{ . |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqje | 8/88: | 9/73: | :/58 |  |  |
| Khdg ri Krxvhkr | :/48 | ;/33: | ; / 8 8 |  |  |
| Pduulhg ilolqj | 43/33 | 43/98 | 44/63 | $44 /<8$ | 45/93 |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo $\mathbb{L}$

4<<3 Lqglylgxdo Lqfrph Wd\{ Udwhv/ Vwdqgdug Gr
Shuvrqdo H\{hpswlrqv/ dqg Ilolqj Wkı

| Wd\{deoh | Lqfrph |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qr } \\ & \text { //// ryh } \end{aligned}$ | Pdujlqdo |
| ' 3 | ' $4</ 783$ | 4813( |
| '4</783 | ' 7:/383 | 5;13( |
| ' 7:/383 | '<:/953 | 6613 ( |
| '<:/953 | dqg ryhu | 64131 |

Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj mrlqwo|


Li |rxu ilolqj vwdwxv lv Khdg ri Krxvhkrog


Li |rxu ilolqj vwdwxv lv Pduulhg ilolqj vhsdudwho|


Ghgxfwlrqv

|  | Vwdqgdu | Eolqg2Hog. |
| :---: | :---: | :---: |
| Vlqjc | '6/58ミ | ';33 |
| Pduulhg ilc |  |  |
| mrlqwo | '8/783 | ' 983 |
| Khdg r: |  |  |
| Krxvhkrog | '7/:83 | ';33 |
| Pduulhg ilc |  |  |
| vhsdudwho\| | '5/:58 | '983 |

Vwdqgdug Ghgxfwlrq iru Ghshqghqwv
Juhdwhu ri '833 ru lqglylgxdov hduqhg lqfrph

Shuvrqdo h\{hpswlrq '5/383

Ilolqj Wkuhvk

|  | Qxpehu ri Eolqg 2 |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
|  | 3 | 4 | 5 | 6 | 7 |
| Vlqjc | $8 / 63$ | $9 / 43$ | $9 /<3$ |  |  |
| Khdg ri Krxvhkr | $9 / ; 3$ | $: / 93$ | $; / 73$ |  |  |
| Pduulhg ilolqj | $</ 88$ | $43 / 53$ | $43 / ; 8$ | $44 / 83$ | $45 / 48$ |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373= Lqwhuqdo Uhyhqxh Vhu Rfwrehu 4:/ 5339 iurp kwws=22zzzlluv1jry2sxe2luv0sulru2

```
Wd{ \hdu 4<;< Lqglylgxdo Lqfrph Wd{ Sdr
```

Li |rxu ilolqj vwdwỉxhlv

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ / / / / \text { ryh } \end{gathered}$ | Udwh |
| ' 3 | '4;/88 | 481 |
| '4;/88 | , 77/<3 | 5; |
| '77/<3 | '<6/46 | 661 |
| '<6/46 | dqg ryr. | 5; |

Li |rxu ilolqj vwdwxv lv Khdg ri

| Wd\{deoh |  | Lqfrph |
| ---: | ---: | :--- |
| Exw qrw |  |  |
| Ryhu | $/ / / /$ ryh | Udwh |
|  |  |  |
| $\prime 3$ | $\prime 57 / ; 8$ | $48($ |
| $\prime 57 / ; 8$ | $\prime 97 / 53$ | $5 ;($ |
| $\prime 95 ; / 53$ | $\prime 45 ; / ; 4$ | $66($ |

Li |rxu ilolqj v*dwxyhgvilolqj mrlqwo|


Li |rxu ilolqj vPduulhg ilolqj vhsdr

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qrw } \\ & \text { //// ryh } \end{aligned}$ | Udwh |
| ' 3 | '48/7: | 48 ( |
| '48/7: | '6:/75 | 5; |
| ' 6:/75 | '44:/; | 661 |
| '44:/; < | dqg ryr. | 5; |

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

```
Wd{ \hdu 4<;; Lqglylgxdo Lqfrph wd{ Sdr
```

Li |rxu ilolqj vwdwixinlv


Li |rxu ilolqj vPduulhg ilolqj m

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{gathered} \text { Exw qr } \\ \text { //// ryh } \end{gathered}$ | Udwh |
| '3 | ' $5</: 8$ | 481 |
| ' $5</$ : 8 | ':4/<3 | 5; |
| ': $4 /<3$ | ' $47</ 58$ | 661 |
| ' $47</ 58$ | dqg ryr. | 5; |

Li |rxu ilolqj vwdwxv lv Khdg ri

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qrw } \\ & \text { //// ryh } \end{aligned}$ | Udwh |
| ' 3 | '56/<3 | 481 |
| '56/<3 | ' 94/98 | 5; |
| ' 94/98 | '456/: < | 661 |
| '456/: < | dqg ryr. | 5; |

Li |rxu ilolqj vPduulhg ilolqj vhsdı


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

```
Wd{ \hdu 4<;: Lqglylgxdo Lqfrph Wd{ Sdr
```

Li |rxu ilolqj vwđ凹齐षhlv


Li |rxu ilolqj vwdwxv lv Khdg ri

| Wd\{deoh Lqfrph |  |  |
| :---: | :---: | :---: |
| / Ryhu | $\begin{aligned} & \text { Exw qrw } \\ & \text { //// ryh } \end{aligned}$ | Udwh |
| , 3 | '5/83 | 44 ( |
| '5/83 | '56/33 | 48 ( |
| '56/33 | '6;/33 | 5; |
| '6;/33 | ';3/33 | 681 |
| ';3/33 | dqg ryt | 6;181 |

Li |rxu ilolqj vidwwingvilolqj mrlqwo|

| Wd\{deoh Lqfrph |  |  | Udwh |
| :---: | :---: | :---: | :---: |
| / Ryhu |  | Exw qr |  |
|  |  | //// ryh |  |
| , 3 |  | 16/33 | 441 |
| 16/33 |  | '5;/33 | 48 ( |
| , 5;/33 |  | , 78/33 | $5 ; 1$ |
| , 78/33 |  | '<3/33 | 681 |
| '<3/33 |  | dqg ryr. | 6;181 |

Li |rxu ilolqj vPduulhg ilolqj vhsdı

| Wd\{deoh Lqfrph |  |  |
| :---: | ---: | :---: |
|  | Exw qrw |  |
| / Ryhu | //// ryh | Udwh |


| $\prime 3$ | $\prime 4 / 83$ | $44($ |
| ---: | ---: | ---: |
| $\prime 4 / 83$ | $\prime 47 / 33$ | $48($ |
| $\prime 47 / 33$ | $\prime 55 / 83$ | $5 ;($ |
| $\prime 55 / 83$ | $\prime 78 / 33$ | $68($ |
| $\prime 78 / 33$ | dqg ryr | $6 ; 18($ |

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

> Qrwhv
> $414<; 4$ Г
> 51 Lqfoxghv \}hur0eudfnhw dprxqw
> Vrxufh= Mrvhsk Shfkpolaghudo Wd\{ Srbleqdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

> Qrwhv
> 41 4<; 4 Г
> 51 Lqfoxghv \}hur0eudfnhw dprxqw
> Vrxufh= Mrvhsk Shfkpolghhudo Wd\{ Srblefqvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

```
    Lqglylgxdo Lqfrph Wd{ Sdude
        Pduulhg Ilolqj Mr
            4<;7
\begin{tabular}{|c|c|c|c|}
\hline \multicolumn{3}{|l|}{Wd\{deoh Lqfrph} & Udwh \\
\hline 13 & c & '6/73 & 31 \\
\hline '6/73 & c & '8/83 & 441 \\
\hline '8/83 & c & ':/93 & 451 \\
\hline ':/93 & c & ' \(44 /<3\) & 47 ( \\
\hline ' \(44 /<3\) & c & '49/33 & 491 \\
\hline '49/33 & c & '53/53 & 4; \\
\hline '53/53 & c & '57/93 & 551 \\
\hline '57/93 & ( & ' \(5</<3\) & 581 \\
\hline ' \(5</<3\) & c & '68/53 & 5; \\
\hline '68/53 & c & '78/; 3 & 661 \\
\hline '78/; 3 & c & '93/33 & 6; \\
\hline '93/33 & c & ';8/93 & 751 \\
\hline ';8/93 & c & ' \(43</ 73\) & 781 \\
\hline ' \(43</ 73\) & c & '495/73 & \(7<1\) \\
\hline '495/73 & ( dqg & ryf. & 831 \\
\hline
\end{tabular}
Qrwhv
\(414<; 4\) I
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 hduqhgolqfrph fuhglw1
Vrxufh= Mrvhsk Shfkpolkghudo Wd\{ Srblfiqvklqjwrq/
GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
```



```
    Lqglylgxdo Lqfrph Wd{ Sdude
        Pduulhg Ilolqj Mr
                4<;5
\begin{tabular}{|c|c|c|c|}
\hline \multicolumn{3}{|l|}{Wd\{deoh Lqfrph} & Udwh \\
\hline ' 3 & c & '6/73 & 31 \\
\hline '6/73 & c & '8/83 & 451 \\
\hline '8/83 & c & ':/93 & 471 \\
\hline ':/93 & c & ' \(44 /<3\) & 491 \\
\hline ' \(44 /<3\) & c & '49/33 & \(4<1\) \\
\hline '49/33 & c & '53/53 & 551 \\
\hline '53/53 & c & '57/93 & 581 \\
\hline '57/93 & c & ' \(5</<3\) & \(5<1\) \\
\hline ' \(5</<3\) & c & '68/53 & 661 \\
\hline '68/53 & c & '78/; 3 & \(6<1\) \\
\hline '78/;3 & c & '93/33 & 771 \\
\hline '93/33 & c & '; \(8 / 93\) & \(7<1\) \\
\hline ';8/93 & & ryr. & 831 \\
\hline
\end{tabular}
Qrwhy
41 4<; 4 I
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 hduqhgolqfrph fuhglw1
Vrxufh= Mrvhsk Shfkp鳥ghudo Wd\{ Srbl府qvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
```

```
        Lqglylgxdo Lqfrph Wd{ Sdude
        Pduulhg Ilolqj Mr
            4<;4
\begin{tabular}{|c|c|c|c|c|}
\hline \multicolumn{4}{|l|}{Wd\{deoh Lqfrph} & Udwh \\
\hline ' 3 & c & & '6/73 & 31 \\
\hline '6/73 & c & & '8/83 & 461;61 \\
\hline '8/83 & c & & ':/93 & 481;31 \\
\hline ':/93 & c & & '44/<3 & 4:1: 81 \\
\hline '44/<3 & c & & '49/33 & 531:6:8 \\
\hline '49/33 & c & & '53/53 & 561:31 \\
\hline '53/53 & c & & '57/93 & 5:1981 \\
\hline '57/93 & c & & '5</<3 & 641931 \\
\hline '5</<3 & c & & '68/53 & 69186:8 \\
\hline '68/53 & c & & '78/;3 & 7517958 \\
\hline '78/;3 & c & & '93/33 & 7;16;:8 \\
\hline '93/33 & c & & ';8/93 & 8616583 \\
\hline ';8/93 & c & & '43</73 & 8;15958 \\
\hline ' \(43</ 73\) & c & & '495/73 & 961531 \\
\hline '495/73 & c & & '548/73 & 9:1481 \\
\hline '548/73 & & dqg & ryf. & \(9<1458\) ( \\
\hline
\end{tabular}
Qrwhv
41 4<; 4 I
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 hduqhgolqfrph fuhglw1
81 Diwhu wd\{ fuhglw ri 4158 shufhqw djdlqvw uhjxodu wd\{1
Vrxufh= Mrvhsk Shfkpdaghudo Wd\{ Srbleqdvklqjwrq/
GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
```

| Lqglylgxdo Lqfrph wd\{ Pduulhg Ilolqj Mr 4<: < 04<; : |  |  |  |
| :---: | :---: | :---: | :---: |
| Wd\{deoh Lqfrph |  |  | Udwh |
| ' 3 | c | '6/73 | 31 |
| 16/73 | c | '8/83 | 471 |
| '8/83 | c | ':/93 | 491 |
| ':/93 | c | ' $44 /<3$ | 4; |
| ' $44 /<3$ | c | '49/33 | 541 |
| '49/33 | c | '53/53 | 571 |
| '53/53 | C | '57/93 | $5 ; 1$ |
| '57/93 | C | ' $5</<3$ | 651 |
| ' $5</<3$ | c | '68/53 | 6: 1 |
| '68/53 | C | '78/; 3 | 761 |
| '78/; 3 | c | '93/33 | $7<1$ |
| '93/33 | c | ';8/93 | 871 |
| ';8/93 | c | ' $43</ 73$ | $8<1$ |
| ' $43</ 73$ | c | '495/73 | 971 |
| '495/73 | c | '548/73 | 9; |
| '548/73 | ( dqg | ryr. | : 31 |

Qrwhv
41 4<: ; I
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 hduqhgOlqfrph fuhglw1

Vrxufh= Mrvhsk Shfkpdarghudo Wd\{ Srbl府qvklqjwrq/
GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

| ```Lqglylgxdo Lqfrph wd{ Pduulhg Ilolqj Mr 4<::04<:;``` |  |  |  |
| :---: | :---: | :---: | :---: |
| Wd\{deoh Lqfrph |  |  | Udwh |
| ' 3 | 0 | '6/533 | 31 |
| '6/533 | 0 | ' 7/533 | 471 |
| '7/533 | 0 | '8/533 | 481 |
| '8/533 | 0 | '9/533 | 491 |
| '9/533 | 0 | ':/533 | 4 : |
| ':/533 | 0 | '44/533 | $4<1$ |
| '44/533 | 0 | '48/533 | 551 |
| '48/533 | 0 | ' $4</ 533$ | 581 |
| ' $4</ 533$ | 0 | '56/533 | 5; |
| '56/533 | 0 | '5:/533 | 651 |
| '5:/533 | 0 | '64/533 | 691 |
| '64/533 | 0 | '68/533 | $6<1$ |
| '68/533 | 0 | ' $6</ 533$ | 751 |
| ' $6</ 533$ | 0 | '76/533 | 781 |
| '76/533 | 0 | '7:/533 | 7 ; |
| '7:/533 | 0 | '88/533 | 831 |
| '88/533 | 0 | '9:/533 | 861 |
| '9:/533 | 0 | ' $:$ :/ 533 | 881 |
| ' : </ 533 | 0 | '<4/533 | 8 ; |
| '<4/533 | 0 | '436/533 | 931 |
| '436/533 | 0 | '456/533 | 951 |
| '456/533 | 0 | '476/533 | 971 |
| '476/533 | 0 | '496/533 | 991 |
| '496/533 | 0 | '4;6/533 | 9 ; |
| ' $4 ; 6 / 533$ | 0 | '536/533 | $9<1$ |
| '536/533 | 0 d | ryhu | : 31 |

Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo Uhyhqxh Vhuylfh/ dydlodeoh iru grzqordg dw> $4<::=$ kwws=22zzz1luv1jry2sxe2luv0sulru2l4373004<: : 1sgi> 4<:; = kwws=22zzz1luv1jry2sxe2luv0sulru2l4373004<:;1sgi


Qrwhv
$414<9<$ 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 hduqhgolqfrph fuhglw ri 43 shufhqw hduqhg lqfrph xs wr '7/333 +skdvhg grzq wr \}hur dw ';/333, ehjlqqlqj lq 4<:81

Vrxufh = Mrvhsk Shfkpdagdhudo Wd\{ Srblefdvklqjwrq/
GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1


Qrwhv
$414<9<$ I
51 Lqfoxghv vxufkdujh ri 518 shufhqw / ehjlc
'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

61 Grhv qrw lqfoxgh plqlpxp wd\{ suhihuhqfh lwhpv1

Vrxufh= Mrvhsk Shfkpdagdhudo Wd\{ Srbleqdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

| Wd\{deoh Lqfrph |  |  | Udwh |
| :---: | :---: | :---: | :---: |
| '3 | c | '4/33 | 47131 |
| '4/33 | c | '5/33 | 48131 |
| '5/33 | c | '6/33 | 4:191 |
| '6/33 | c | '7/33 | 4;1: 1 |
| '7/33 | c | ';/33 | 531<1 |
| ';/33 | c | '45/33 | 57151 |
| '45/33 | c | '49/33 | 5:181 |
| '49/33 | c | '53/33 | 631; ( |
| '53/33 | c | '57/33 | 6815 ( |
| '57/33 | C | '5;/33 | 6<19 ( |
| '5;/33 | c | '65/33 | 751<1 |
| '65/33 | c | '69/33 | 7915 ( |
| '69/33 | c | '73/33 | 7<18 ( |
| '73/33 | c | '77/33 | 851; ( |
| '77/33 | c | '85/33 | 88131 |
| '85/33 | c | '97/33 | 8;161 |
| '97/33 | c | ':9/33 | 9318 ( |
| ':9/33 | c | '; ;/33 | 961; |
| '; ;/33 | c | '433/33 | 99131 |
| '433/33 | c | '453/33 | 9;15( |
| '453/33 | c | '473/33 | :317( |
| '473/33 | c | '493/33 | :519( |
| '493/33 | c | '4;3/33 | :71; |
| '4;3/33 | c | '533/33 | : $81<1$ |
| '533/33 |  | ryf. | ::131 |

Qrwhv
$414<9$; I
51 Lqfoxghv vxufkdujh ri 43 shufhqw / ehjlq
'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

Vrxufh= Mrvhsk Shfkpdhqhudo wd\{ Srblifdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1


Qrwhv
$414<9$; I
51 Lqfoxghv vxufkdujh ri :18 shufhqw / ehjlc
'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

Vrxufh= Mrvhsk Shfkpdhqhudo wd\{ Srblifdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1

| Wd\{deoh Lqfrph |  |  | Udwh |
| :---: | :---: | :---: | :---: |
| ' 3 | c | '4/33 | 47 ( |
| '4/33 | c | '5/33 | 48( |
| '5/33 | c | '6/33 | 491 |
| '6/33 | c | '7/33 | 4: ( |
| '7/33 | c | ';/33 | $4<1$ |
| ';/33 | c | '45/33 | 551 |
| '45/33 | c | '49/33 | 58( |
| '49/33 | c | '53/33 | 5; |
| '53/33 | c | '57/33 | 651 |
| '57/33 | c | '5;/33 | 691 |
| '5;/33 | c | '65/33 | 6<1 |
| '65/33 | c | '69/33 | 751 |
| '69/33 | c | '73/33 | 781 |
| '73/33 | c | '77/33 | 7; |
| '77/33 | c | '85/33 | 831 |
| '85/33 | c | '97/33 | 861 |
| '97/33 | c | ':9/33 | 88( |
| ':9/33 | c | '; ;/33 | 8; |
| '; ;/33 | c | '433/33 | 931 |
| '433/33 | $c$ | '453/33 | 951 |
| '453/33 | $c$ | '473/33 | 971 |
| '473/33 | c | '493/33 | 991 |
| '493/33 | c | '4;3/33 | 9; |
| '4;3/33 | c | '533/33 | $9<1$ |
| '533/33 | ( dqg | ryr. | :31 |

Vrxufh= Mrvhsk Shfkp $\quad$ laghudo Wd\{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
$4<97$ Df

| Wd\{deoh Lqfrph |  |  | Udwh |
| :---: | :---: | :---: | :---: |
| '3 | c | '4/33 | 49131 |
| '4/33 | c | '5/33 | 4918 ( |
| '5/33 | c | '6/33 | 4:18( |
| '6/33 | c | '7/33 | 4;131 |
| '7/33 | c | ';/33 | 53131 |
| ';/33 | c | '45/33 | 56181 |
| '45/33 | c | '49/33 | 5:131 |
| '49/33 | c | '53/33 | 6318( |
| '53/33 | c | '57/33 | 67131 |
| '57/33 | c | '5;/33 | 6:18( |
| '5;/33 | c | '65/33 | 74131 |
| '65/33 | c | '69/33 | 77181 |
| '69/33 | c | '73/33 | 7:18( |
| '73/33 | c | '77/33 | 8318( |
| '77/33 | c | '85/33 | 8618( |
| '85/33 | c | '97/33 | 89131 |
| '97/33 | c | ':9/33 | 8;18( |
| ':9/33 | c | '; ;/33 | 94131 |
| '; ;/33 | c | '433/33 | 9618( |
| '433/33 | c | '453/33 | 99131 |
| '453/33 | c | '473/33 | 9;18( |
| '473/33 | c | '493/33 | :4131 |
| '493/33 | c | '4;3/33 | :618( |
| '4;3/33 | c | '533/33 | : 8131 |
| '533/33 | c | '733/33 | : 918( |
| '733/333 | 0 d | ryhu | ::131 |

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

4<97 Df

| $\begin{gathered} \text { Lqglylgxdo Lqfrph Wd\{ } \\ \text { Pduulhg Ilolqj Mr } \\ 4<8704<9 \text { ( } \end{gathered}$ |  |  |  |
| :---: | :---: | :---: | :---: |
| Wd\{deoh Lqfrph |  |  | Udwh |
| ' 3 | c | '7/33 | 53131 |
| '7/33 | c | ';/33 | 55131 |
| ';/33 | c | '45/33 | 59131 |
| '45/33 | c | '49/33 | 63131 |
| '49/33 | c | '53/33 | 67131 |
| '53/33 | c | '57/33 | 6;131 |
| '57/33 | c | '5; /33 | 76131 |
| '5;/33 | c | '65/33 | 7:131 |
| '65/33 | c | '69/33 | 83131 |
| '69/33 | c | '73/33 | 86131 |
| '73/33 | c | '77/33 | 89131 |
| '77/33 | c | '85/33 | $8<13$ ( |
| '85/33 | C | '97/33 | 95131 |
| '97/33 | c | ':9/33 | 98131 |
| ':9/33 | c | '; ; / 33 | $9<13$ ( |
| '; ; / 33 | c | '433/33 | : 5131 |
| '433/33 | c | '453/33 | : 813 |
| '453/33 | c | '473/33 | :;131 |
| '473/33 | c | '493/33 | ; 4131 |
| '493/33 | c | '4;3/33 | ; 7131 |
| '4;3/33 | c | '533/33 | ; : 131 |
| '533/33 | C | '633/33 | ; <13 |
| '633/33 | c | '733/33 | <313 |
| '733/333 | 0 dqg | ryhu | <413 |

Vrxufh= Mrvhsk Shfkpalaghudo Wd\{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
${ }^{d}$ Vxemhfw wr wkh iroorzlqj pd\{lpxp hiihfwlyh udwh olplwdwlrq= ;:(
e $4<84$ Dfw

| ```Lqglylgxdo Lqfrph Wd{ Pduulhg Ilolqj Mr 4<8504<8&``` |  |  |  |
| :---: | :---: | :---: | :---: |
| Wd\{deo | h Lqf | rph | Udwh |
| ' 3 | c | '7/33 | 55151 |
| '7/33 | ( | ';/33 | 57191 |
| ';/33 | c | '45/33 | $5<131$ |
| '45/33 | C | '49/33 | 67131 |
| '49/33 | c | '53/33 | 6;131 |
| '53/33 | C | '57/33 | 75131 |
| '57/33 | c | '5;/33 | 7;131 |
| '5;/33 | c | '65/33 | 86131 |
| '65/33 | ( | '69/33 | 89131 |
| '69/33 | c | '73/33 | $8<13$ |
| '73/33 | C | '77/33 | 95131 |
| '77/33 | c | '85/33 | 99131 |
| '85/33 | C | '97/33 | 9:131 |
| '97/33 | ( | ':9/33 | 9;131 |
| ':9/33 | c | '; ;/33 | : 5131 |
| '; ; / 33 | c | '433/33 | : 8131 |
| '433/33 | C | '453/33 | : : 131 |
| '453/33 | C | '473/33 | ; 3131 |
| '473/33 | c | '493/33 | ; 6131 |
| '493/33 | c | '4;3/33 | ; 8131 |
| '4;3/33 | c | '533/33 | ; 131 |
| '533/33 | ( | '633/33 | <313 |
| '633/33 | C | '733/33 | <413 |
| , 733/333 | 0 dqg | ryhu | <513 |

Vrxufh= Mrvhsk Shfkplaghudo Wd\{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
${ }^{d}$ Vxemhfw wr wkh iroorzlqj pd\{lpxp hiihfwlyh udwh olplwdwlrq= ; ;


Vrxufh= Mrvhsk Shfkpdughudo Wd\{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
${ }^{d}$ Vxemhfw wr wkh iroorzlqj pd\{lpxp hiihfwlyh udwh olplwdwlrq= ;:15(1
e $4<84$ Dfw

| Wd\{deoh Lqfrph |  |  | Udwh |
| :---: | :---: | :---: | :---: |
| '3 | c | '7/33 | 4:1731 |
| '7/33 | c | ';/33 | 531351 |
| ';/33 | c | '45/33 | 561991 |
| '45/33 | c | '49/33 | 5:1631 |
| '49/33 | c | '53/33 | $631<71$ |
| '53/33 | c | '57/33 | 6718; 1 |
| '57/33 | c | '5;/33 | 6<146 |
| '5;/33 | c | '65/33 | 751: 1 |
| '65/33 | c | '69/33 | 781831 |
| '69/33 | c | '73/33 | 7;1561 |
| ' 73/33 | c | '77/33 | 831<9 |
| ' 77/33 | c | '85/33 | $8619<1$ |
| '85/33 | c | '97/33 | 891751 |
| '97/33 | c | ':9/33 | 8<148 |
| ':9/33 | c | '; ;/33 | 951:<1 |
| '; ;/33 | c | '433/33 | 981851 |
| '433/33 | c | '453/33 | 9;158 ( |
| '453/33 | c | '473/33 | :31<; 1 |
| '473/33 | c | '493/33 | :61:41 |
| '493/33 | c | '4;3/33 | :9177 |
| '4;3/33 | c | '533/33 | :<14: |
| '533/33 | c | '5:6/76 | ; $31 \ll 1$ |
| '5:6/76 | c | '633/33 | ; 518361 |
| '633/33 | C | ' 733/33 | ; 617631 |
| '733/333 |  | dqg ryhu | ; 7168:( |

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

[^3]| Wd\{deoh Lqfrph |  |  | Udwh |
| :---: | :---: | :---: | :---: |
| '3 | c | '7/33 | 491931 |
| , 7/33 | c | ';/33 | 4<169 ( |
| ';/33 | c | '45/33 | 551; ; |
| '45/33 | c | '49/33 | 591731 |
| '49/33 | c | '53/33 | $5<1<5$ ( |
| '53/33 | c | '57/33 | 661771 |
| '57/33 | c | '5;/33 | 6:1;71 |
| '5;/33 | c | '65/33 | 741691 |
| '65/33 | c | '69/33 | 771331 |
| '69/33 | c | '73/33 | 791971 |
| '73/33 | c | '77/33 | 7<15; |
| '77/33 | c | '85/33 | $841<51$ |
| '85/33 | c | '97/33 | 87189 ( |
| '97/33 | c | ':9/33 | 8:1531 |
| ':9/33 | c | '; ;/33 | 931:51 |
| '; ;/33 | c | '433/33 | 96169 ( |
| '433/33 | c | '453/33 | 991331 |
| '453/33 | c | '473/33 | 9;197( |
| '473/33 | c | '493/33 | :415; |
| '493/33 | c | '4;3/33 | : 61<5 |
| '4;3/33 | c | '533/33 | : 9189 ( |
| '533/33 | c | '5:6/76 | :;1651 |
| '5:6/76 | c | '633/33 | ; 316558 |
| '633/33 | C | '733/33 | ; 415583 |
| , 733/333 | 0 d | ryhu | ;5145:8( |

Vrxufh= Mrvhsk Shfkpdlaghudo wd\{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
${ }^{\text {d}}$ Vxemhfw wr wkh iroorzlqj pd\{lpxp hiihfwlyh udwh olplwdwlrq= ::(
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

| $\begin{gathered} \text { Lqglylgxdo Lqfrph Wd\{ } \\ 4<7904<7 \end{gathered}$ |  |  | Sdudx |
| :---: | :---: | :---: | :---: |
| Wd\{deoh Lqfrph |  |  | Udwh |
| ' 3 | c | '5/33 | $4<1331$ |
| '5/33 | C | '7/33 | 531<31 |
| '7/33 | c | '9/33 | 571:31 |
| '9/33 | C | ';/33 | 5;1831 |
| ';/33 | c | '43/33 | 651631 |
| '43/33 | c | '45/33 | 691431 |
| '45/33 | c | '47/33 | 731;81 |
| '47/33 | C | '49/33 | 771981 |
| '49/33 | c | '4;/33 | 7:1831 |
| '4;/33 | C | '53/33 | 831681 |
| '53/33 | c | '55/33 | 861531 |
| '55/33 | c | '59/33 | 891381 |
| '59/33 | c | '65/33 | $8 ; 1<31$ |
| '65/33 | c | '6;/33 | 941:81 |
| '6;/33 | c | '77/33 | 981881 |
| '77/33 | c | '83/33 | 9;1731 |
| '83/33 | C | '93/33 | :41581 |
| '93/33 | c | ':3/33 | : 71431 |
| ':3/33 | c | ';3/33 | : 91<81 |
| ';3/33 | c | $'<3 / 33$ | : <1; 3 l |
| '<3/33 | C | '433/33 | ; 51981 |
| '433/33 | c | '483/33 | ; 71881 |
| '483/33 | C | '533/33 | ; 81831 |
| '533/333 | 0 dqg | ryhu | ; 9178 ( |

Vrxufh= Mrvhsk Shfkpalaghudo Wd\{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
dVxemhfw wr wkh iroorzlqj pd\{lpxp hiihfwlyh udwh olplwdwlrqv= ;818 shufhqw iru 4<7907:1 e $4<78$ Dfw
$\left.\begin{array}{ccc}\text { Lqglylgxdo Lqfrph Wd\{ Sdudf } \\ 4<7704<78\end{array}\right)$

Vrxufh= Mrvhsk Shfkpalaghudo Wd\{ Srblf| Zdvklqjwrq/ GF= Eurrnlqjv Lqvwlwxwlrq/ 4<;:1
${ }^{d}$ Vxemhfw wr wkh iroorzlqj pd\{lpxp hiihfwlyh udwh olplwdwlrqv= <313 shufhqw iru $4<7704<78$ e $4<77$ Dfw


[^0]:    Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo Uhyhqxh Vhuylfh

[^1]:    Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo Uhyhqxh Vhuylfh

[^2]:    Vrxufh= Lqvwuxfwlrqv iru Irup 4373/ Lqwhuqdo $\tau$

[^3]:    ${ }^{d}$ Vxemhfw wr wkh iroorzlqj pd\{lpxp hiihfwlyh udwh olplwdwlrq= ;:(1
    e $4<83$ Dfw

