Understanding Bridge Scoring

Contract bridge scoring has two stages. The first is the scoring of each hand, while the second is the scoring of the hands across a tournament. In this note on scoring, we will cover the development of bridge up to contract bridge. We will then describe scoring in simple (or rubber) contract bridge. Finally, we will describe tournament scoring covering changes to the hand scores, matchpoint scoring and international matchpoint scoring (or IMPs).

Short history

Bridge developed as a variant of whist. In whist, the cards are dealt in the same way as bridge, but the trump suit is determined by the last card dealt to dealer, there is no bidding, and no hand is dummy. The side with the most tricks scores 1 point for each trick over six they win, and a game is over when one side earns more than 5 tricks. Duplicate movements that we play in bridge were first developed for whist. Variants of whist introduced the concepts of game, rubber and slam.

Variants of whist are still popular today. One known variously as *Oh hell* and *Up and Down the River* is commonly played in Australia (some South32 folk tell me that under the latter name it is very popular in the crib room in the coal mines). In this variant players act independently and nominate how many tricks they independently will make, the total not being allowed to add to the number of tricks available.

In the first step in what later became bridge was Biritch or Russian Whist. Instead of trumps being chosen by the turn of the card, dealer nominated them or they could choose no trumps (called biritch). Alternatively they could "pass" in which case their partner had to choose the suit (or no trumps). There were different trick points for each suit (10 for NT, 8 for♥, 6 for ♦, 4 for ♣ and 2 for ♠) and a bonus for making thirteen tricks slam. The hand was played by dealer with partner's hand dummy.

In 1904 auction bridge was developed and the players bid in a competitive auction to choose a contract and declarer. This then introduced the concept of losing points for not making contract. Contract bridge as we know it is credited to the scoring by H S Vanderbilt in 1925 and introduced a distinction between making the tricks bid from overtricks. This provided an additional incentive to bid high (slam bonuses already existed) rather than just win the auction.

The first Laws of Contract Bridge were "agreed upon and promulgated by The Whist Club, New York; Portland Club, London; and the Commission Française du Bridge, Paris in 1932. The one year old NSW Bridge Association adopted these International Laws of Contract Bridge (see picture to right from the Brisbane Telegraph (Brisbane) on 24 April 1935.

Contract bridge is what is played in duplicate bridge. The Australian Bridge Federation constitution defines bridge as "the game of contract



CONTRACT BRIDGE

Official Announcement

The New South Wales Bridge Association has adopted the International Laws of Contract Bridge, 1935, as agreed and promulgated by the Portland Club, London; the Whist Club, New York; and Commission Francaise du Bridge, Paris.

As from to-day's date (says the "Sydney Morning Herald") the following new scoring will take effect:—

TRICK POINTS FOR DECLARER.

	Undoubled.	Doubled.
Odd tricks bid and won in—		
Clubs or diamonds, each	20	40
Hearts or spades, each	30	60
No trumps—First	40	80
Each subsequent	30	60

Redoubling doubles the doubled points for odd tricks.

Vulnerability does not affect points for odd tricks.

100 trick points constitute a game.

POINTS FOR DECLARER.

	Not Vulnerable.	Vulnerable.
Overtricks—		
Undoubled, each	trick value	trick value
Doubled, each	100	200

PREMIUM DEFENDER.

Undertricks—		
Undoubled, each	50	100
Doubled—First	100	200
Each subsequent	200	300

Redoubling doubles the doubled points for overtricks and undertricks.

POINTS FOR HOLDER.

Honours in one hand—	
All honours	150
Four trump honours	100

PREMIUM DECLARER.

	Not Vulnerable.	Vulnerable.
Slams bid and won—		
Little	500	750
Grand	1,000	1,500
Rubber points—		
Two game		700
Three game		500

Unfinished rubber—The winners of one game score 300 points.

Doubling and redoubling do not affect points for honours, slams, or rubber.

Vulnerability does not affect points for honours.

bridge" and that the object of the ABF is "to foster interest in and promote the game of bridge". However, more fundamental than duplicate bridge is the game of rubber bridge which can be played socially between just two pairs.

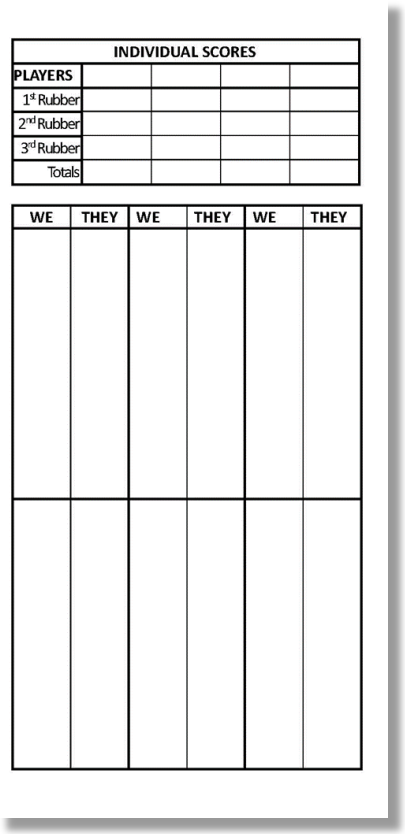
The ABF's counterpart in the US is called the American Contract Bridge League and they publish the Laws of rubber bridge. Many duplicate bridge players have no idea of how rubber bridge is played. It is, perhaps, unfortunate that the popularity of duplicate bridge has taken bridge playing out of a domestic setting and into halls that can be mistaken as speed dating for seniors (see IBA Newsletter March 2023).

The fundamentals of scoring are the same between rubber (Part V of the ACBL laws) and duplicate bridge (Law 77 of the WBF :Laws), and it is the former which creates the concept of "vulnerable" and "game" used in duplicate without much context.

Rubber bridge scoring

There are three ways a pair can score points in rubber bridge. The first two are the trick scores and the premium scores that can be earned for making a contract. The third are the undertrick penalties earned when opponents don't make their contract.

A rubber bridge scorepad has three sets of two columns headed "We" and "They" for recording three separate **rubbers** with a line across the middle. In each rubber only trick scores are entered below the line. Once a side has a total of 100 trick scores below the line, they are sad to have made **game**.



Once a team has scored game, a new line is drawn across both columns below the "below the line entries" already made. Clearly a bid where the trick score is 100 or more results in game and hence is called **a game bid**. New trick scores are entered below this new line.

All premium scores (including over tricks) are scored above the line. Premium scores include overtricks, bonuses for bidding and making slam and bonuses for winning a rubber.

Once one side has made two games, they are said to have made **rubber**. They are then awarded the premium score for making the rubber and all the scores on both sides are totalled and the difference calculated.

When a side has won one game, they become **vulnerable.** Vulnerability increases the penalty for undertricks and acts as a discouragement of reckless bidding trying to convert the position to rubber by winning a second game.

For the score pad shown, the top section is completed by dividing the rubber score by one hundred then rounding to the nearest integer (at least where I learnt – I can't find this in any books) and this score as a positive or negative is entered for each player. This format allows for the rotation of players so that each possible pair of players plays one rubber each (e.g. NS, NE, NW). You can also play this version for money – e.g. a dollar a point paid on the scores recorded in the top section.

Now all we need to know is the scoring elements.

Trick score – the trick score is awarded for each **odd** trick (i.e. beyond the **bank** of six) bid and made. Only the trick score is recorded below the line.

If trumps are	Minor ♣,♦	Major ♥,♠	No Trump	
If contract is			First trick	Subsequent tricks
Undoubled	20	30	40	30
Doubled	40	60	80	60
Redoubled	80	120	160	120

Overtricks form part of the **premium score** and are recorded above the line.

	Not vulnerable	**Vulnerable**
Undoubled	Trick score	Trick score
Doubled	100	200
Redoubled	200	400

The **slam bonus** is awarded for bidding and making slam.

	Not Vulnerable	**Vulnerable**
Small Slam (12 tricks)	500	750
Grand Slam (13 tricks)	1000	1500

Undertrick penalties are also scored above the line.

Not vulnerable

	Undoubled	**Doubled**	**Redoubled**
For first undertrick	50	100	200
For each additional	50	200	400
Bonus for fourth and subsequent	0	100	200

Vulnerable

	Undoubled	**Doubled**	**Redoubled**
For first undertrick	100	200	400
For each additional	100	300	600

We now come to the last group of premium scores which includes the **bonuses for making rubber.** These are **s**cored above the line by declarer's side.

For winning the rubber	
If opponents have won no game	700
If opponents have won one game	500
In an unfinished rubber	
For having won the only game in an unfinished rubber	300

For having the only partscore in an unfinished game	100
Insult (a colloquial term not part of rules)	
For making any doubled contract	50
For making any redoubled contract	100

In rubber bridge there are also some scores added for making honours (100 for holding four of the five trump honours, or 150 for holding all five trump honours or all four aces in no trumps). As these would accrue to all pairs playing the same boards in duplicate they are not used.

In the score sheet opposite, on the first hand we bid 1NT but makes 9 tricks, their score (in red) is 40 below and 60 above. On the second hand we bid 3S but only make 7 tricks, they score 50 above (in blue). On the third hand we bid and make 2♥ scoring 60 below (in green). We then have made game and draw a new horizontal line across both columns.

To start the next game, they bid 3♠ making 10 and score 90 below and 30 above (in purple). Then we bid 4♠, are doubled and go off three, opponents score 800 above (in light blue). We then bid 2♠ and are doubled again but make our 8 tricks, and we score 120 below plus 50 above for the insult (in brown). We have made our second game and make rubber with opponents not making a game so we score 700 above the line (in black).

Though we won the rubber, because of the undertrick bonus the scores are quite close being a difference of +60. As mentioned above, this would be rounded to the nearest hundred and divided by a hundred (i.e. 1) in the score at the top of the sheet (not shown at the right). This is not part of the official Laws of Rubber Bridge.

WE	THEY	WE	THEY	WE	THEY
700 50 60	800 30 50				
40 60					
120	90				
1030 +60	970				

Duplicate bridge scoring

All the same elements apply to duplicate bridge scoring. The trick scores, overtrick scores, slam bonuses and undertrick scores are exactly the same as are the bonuses for the insult when making a doubled contract.

Because there is no process of making game and hence becoming vulnerable, the vulnerability is determined by an order established in the Laws. This is a repeating pattern over sixteen boards where the dealer rotates N, E, S, W four times from board 1 to 16. Vulnerability is determined by the following table:

Neither Side Vulnerable	Boards 1 8 11 14
North-South Vulnerable	Boards 2 5 12 15
East-West Vulnerable	Boards 3 6 9 16
Both Sides Vulnerable	Boards 4 7 10 13

And to mimic the rubber bridge scores, we are awarded bonuses for bidding to game (a contract on which the trick score is 100 or more) with a higher bonus for being vulnerable, plus a bonus for making a part-score.

- For game bid vulnerable 500
- For game bid not vulnerable 300
- For part score 50

So we can now see how the score for any hand is determined. Here are some examples.

Bidding 2♠ making 10 tricks

Trick score = 2*30	60
Overtricks = 2*30	60
Part-score bonus	50
Total	170

Bidding 2♠ doubled and vulnerable

Trick score = 2*60	120
Overtricks = 2*200	400
Bonus for insult	50
Bonus for game	500
Total	1070

Note the difference between the two. In the first case vulnerability was irrelevant to the score (so we didn't mention it). The game bonus is awarded in the second case because the trick score (i.e. score for tricks bid and made) is now over 100. The overtricks now also score more than the trick score.

Bidding 4♠ making 12 tricks not vulnerable

Trick score = 4*30	120
Overtricks = 2*30	60
Bonus for game	300
Total	480

Bidding 6♠ making 12 tricks not vulnerable

Trick score = 6*30	180
Bonus for game	300
Slam bonus	500
Total	980

Matchpoints

This, of course, isn't the end of the story. In duplicate bridge these hand scores are converted into scores that rate your performance against the rest of the field. There are two methods; matchpoints and international matchpoint scoring (or IMPs).

The first of these is used for standard duplicate pairs and is simply described in the Laws as follows:

> *In matchpoint scoring each contestant is awarded, for scores made by different contestants who have played the same board and whose scores are compared with his, two scoring units for each score inferior to his, one scoring unit for each score equal to his, and zero scoring units for each score superior to his.*

This can be seen most easily in the Pianola results. The extract below was from a session played at IBA. The Pianola view is the easiest to see it in because it reports results ranked in score order.

Pairs		Contract				Scores		MPs	
NS	EW	Bid	By	Maki...	Lead	NS	EW	NS	EW
C Bale & K McIvor	S Dynan & P Graham	5♣	S	12	4♠	420	-	22	0
P Lavings & H Lavings	Y Harbinson & E Pietrini	5♣	S	11	9♠	400	-	18	4
J Rollinson & R La Marra	R McNee & G McNee	5♣	S	11	A♥	400	-	18	4
S Szatmary & G Cowen	S Bochan & L O'Leary	5♣	S	11	9♠	400	-	18	4
J Wardell & M Lerman	J Kingston & D Gallagher	3♣	S	11	4♠	150	-	13	9
A Tavan & M Turner	S Southern & D Higgins	3♣	S	11	4♠	150	-	13	9
P Kelly & S Kahler	S Leach & J Zamuner	3♠	E	7	7♥	100	-	10	12
P Boehme & M McNam...	A Lee & L Gulati	4♦	N	9	6♠	-	50	7	15
M Pickering & C Githens	S Vogl & J Cowling	3NT	N	8	6♠	-	50	7	15
C Power & N Meehan	C Yates & A O'Brien	2♠	E	8	7♥	-	110	4	18
B Pieters & G Coomer	R Neild & S Cutsforth	3♠	E	9	K♣	-	140	1	21
M Havyatt & D Havyatt	K Snowden & V Hodsdon	3♠	E	9	7♥	-	140	1	21

The pair that bid and made 5♣ with an overtrick had a higher score than all the other NS pairs and score 22 matchpoints. Their opponents of course had a higher score than no one so they score zero. The 22 points is described as a "top" which is the number of tables (n) minus 1 then all multiplied by 2 (i.e. 2*(n-1)). The sum of the matchpoints for each table is equal to the top. Note that if two or more pairs draw with the highest score their individual scores are less than the "top".

The three NS pairs bidding and making 5♣ had a higher score than eight other pairs and drew with two so their score is 8*2+2=18. The two pairs who bid 3♣ and made two overtricks had a better score than six other players so their score is 6*2+1=13.

The same hand as shown on our website results has the same information, but it is first presented in NS pair number order (an extract without the pair names is shown below). By clicking on the column heading NS this can be reordered to be in score order (a further extract is also shown below).

Presented in NS pair number order

			Score		Matchpoints	
Contract	Lead	Tricks	NS	EW	NS	EW
5♣ S	9S	11	400		18	4
5♣ S	4S	12	420		22	0
5♣ S	AH	11	400		18	4
4♦ N	6S	9		50	7	15
3♣ S	4S	11	150		13	9
3NT N	6S	8		50	7	15
3♣ S	4S	11	150		13	9
3♠ E	7H	7	100		10	12
5♣ S	9S	11	400		18	4
3♠ E	KC	9		140	1	21
2♠ E	7H	8		110	4	18
3♠ E	7H	9		140	1	21

Presented in NS score order

			Score		Matchpoints	
Contract	Lead	Tricks	NS	EW	NS	EW
5♣ S	4S	12	420		22	0
5♣ S	9S	11	400		18	4
5♣ S	AH	11	400		18	4
5♣ S	9S	11	400		18	4
3♣ S	4S	11	150		13	9
3♣ S	4S	11	150		13	9
3♠ E	7H	7	100		10	12
3NT N	6S	8		50	7	15
4♦ N	6S	9		50	7	15
2♠ E	7H	8		110	4	18
3♠ E	KC	9		140	1	21
3♠ E	7H	9		140	1	21

Pianola and our website also present the information in each pair's results slightly differently. Both report your MP score for each board and that result as a percentage (which is the MP score*100 divided by the top for that board) but Pianola gives the additional information of the top for that board. The top can vary between boards in the same event because some boards might not be played as many times as others.

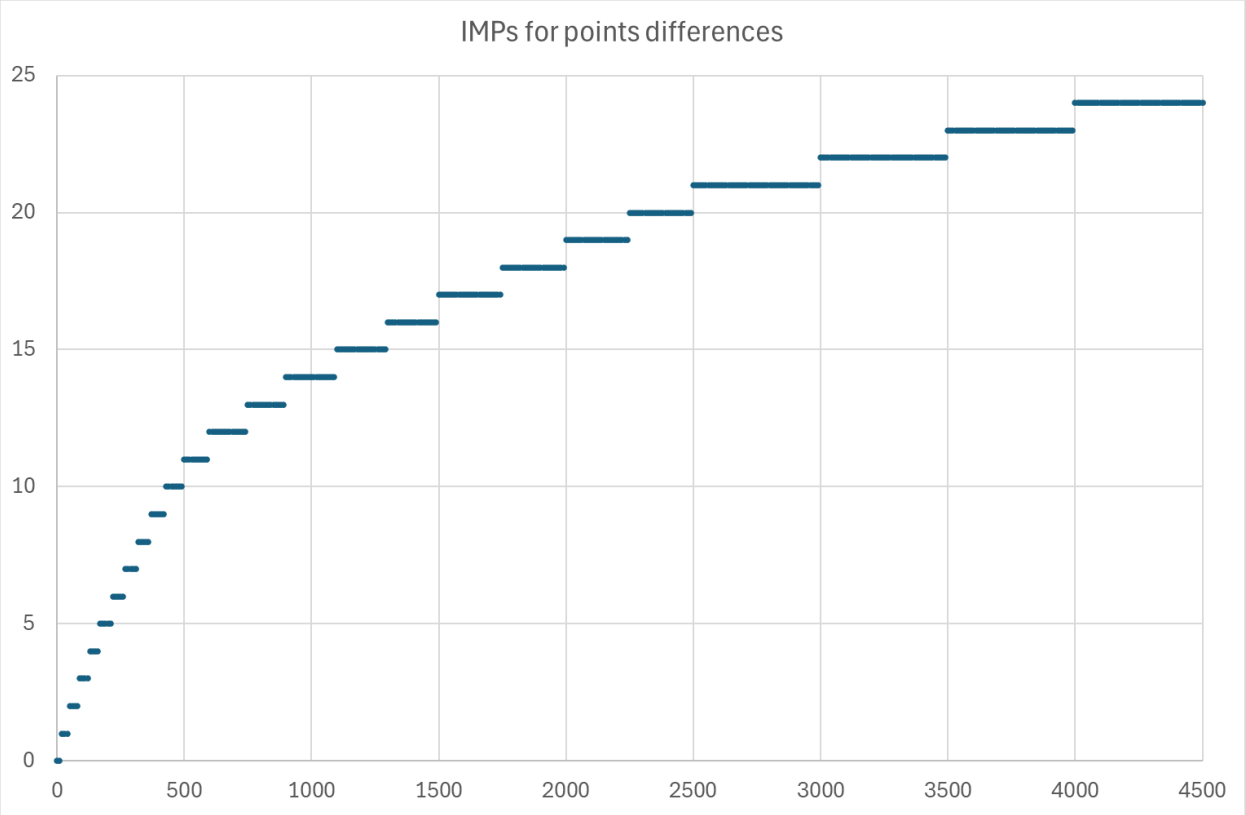
Board ▲	Versus	Bid	By	Making	Score	Bidding	Card play	MPs	Top MPs	Percentage
1	Christine Yates & Aileen O'Brien	2♥	N	10	+170	Good bid	+1	19	22	86% ★★★★½

Board No	vs Pr	Contract	Lead	Result	Score	Matchpoints	%
Board 1	5: CHRISTINE YATES / Aileen O'Brien	2♥ N	4D	10	170	19	86%

International Match Points (IMPs)

IMPs scoring uses a table that is published in the Laws and is based on a comparison of a pair's score with some other score. In teams, that other score is the score at the other table so if the same contract is bid and made at each table EWs score is simply the opposite of NSs score and the sum of the scores is the points difference. In pairs, each pair is scored relative to a "datum" which varies depending on the competition. The simplest version is the average of all scores on that board. Butler scoring is a variation in which the highest and lowest 10% of scores aren't included in the calculation of the datum.

There is no formula given for the derivation of this table, but plotting the IMPs against points difference (below) shows a near linear relationship up to points difference of about 500 and then a skink to a lower slope.



In the version known as cross IMPs, the IMPs difference is calculated for a pair versus every other pair and then the IMPs are averaged. The table below shows the calculation of IMPs using all three methods. Note that the cross IMPs method results in the total being zero, which means there is no bias to NS or EW in the scoring. This benefit is lost when we round the IMPs to whole numbers.

Pair	NS Score	Score difference	IMPs NS	Butler Difference	Butler IMPs NS	Cross-IMPs NS	Cross-IMPs rounded
1	400	270	7	280	7	5.9	6
2	420	290	7	300	7	6.5	7
3	400	270	7	280	7	5.9	6
4	-50	-180	-5	-170	-5	-3.8	-4
5	150	20	1	30	1	0.6	1
6	-50	-180	-5	-170	-5	-3.8	-4
7	150	20	1	30	1	0.6	1
8	100	-30	-1	-20	-1	-0.7	-1
9	400	270	7	280	7	5.9	6
10	-140	-270	-7	-260	-6	-5.9	-6
11	-110	-240	-6	-230	-6	-5.3	-5
12	-140	-270	-7	-260	-6	-5.9	-6
Datum	130	Total	-1		1	0	1
Butler Datum	120						

To further compound matters, it is felt that the IMPs scoring table potentially over-rewards big score differences (despite already reducing the IMPs for higher points differences). To address this a system of Victory Points is used to convert the IMPs score to VPs but this is applied to the total IMPs difference for a match. As a consequence, the IMPs to VP conversion table is different depending on how many boards are played in each match.

The World Bridge Federation winner IMPs margin to VPs table for 4 to 12 board matches (the sizes typically seen in club events and local congresses) are shown below. VPs are awarded to a maximum of 20. The loser's VPs are simply the winner's VPs subtracted from 20.

For the mathematically inclined the equation for calculating the VPs given a number of boards B and a margin M is:

$$10 + 10 * \left(1 - \tau^{\left(3M/\left(15*\sqrt{B}\right)\right)}\right)/(1 - \tau^3)$$

Where $\tau = \left(\sqrt{5} - 1\right)/2$ which is known as the "golden mean" and is approximately 0.618.

IMPs margin to VP table for 4 to 12 board matches

Boards	4	5	6	7	8	9	10	11	12
Margin									
0	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
1	10.61	10.55	10.50	10.47	10.44	10.41	10.39	10.37	10.36
2	11.20	11.08	10.99	10.92	10.86	10.81	10.77	10.74	10.71
3	11.76	11.59	11.46	11.35	11.27	11.20	11.14	11.09	11.05
4	12.29	12.07	11.90	11.77	11.67	11.58	11.50	11.43	11.38
5	12.80	12.53	12.33	12.18	12.05	11.94	11.85	11.77	11.70
6	13.28	12.98	12.75	12.57	12.42	12.29	12.18	12.09	12.01
7	13.74	13.41	13.15	12.94	12.77	12.63	12.51	12.41	12.31
8	14.18	13.81	13.53	13.31	13.12	12.96	12.83	12.71	12.61
9	14.60	14.20	13.90	13.65	13.45	13.28	13.14	13.01	12.90
10	15.00	14.58	14.25	13.99	13.78	13.59	13.43	13.30	13.18
11	15.38	14.94	14.59	14.32	14.09	13.89	13.72	13.58	13.45
12	15.74	15.28	14.92	14.63	14.39	14.18	14.00	13.85	13.71
13	16.09	15.61	15.24	14.93	14.68	14.46	14.28	14.11	13.97
14	16.42	15.92	15.54	15.22	14.96	14.74	14.54	14.37	14.22
15	16.73	16.23	15.83	15.50	15.23	15.00	14.80	14.62	14.46
16	17.03	16.52	16.11	15.78	15.50	15.26	15.05	14.86	14.70
17	17.31	16.79	16.38	16.04	15.75	15.50	15.29	15.10	14.93
18	17.59	17.06	16.64	16.29	16.00	15.74	15.52	15.33	15.15
19	17.84	17.31	16.89	16.53	16.23	15.97	15.75	15.55	15.37
20	18.09	17.56	17.12	16.77	16.46	16.20	15.97	15.76	15.58
21	18.33	17.79	17.35	16.99	16.68	16.42	16.18	15.97	15.79
22	18.55	18.01	17.58	17.21	16.90	16.63	16.39	16.18	15.99
23	18.76	18.23	17.79	17.42	17.11	16.83	16.59	16.37	16.18
24	18.97	18.43	17.99	17.62	17.31	17.03	16.78	16.57	16.37
25	19.16	18.63	18.19	17.82	17.50	17.22	16.97	16.75	16.55
26	19.34	18.82	18.38	18.01	17.69	17.41	17.16	16.93	16.73
27	19.52	19.00	18.56	18.19	17.87	17.59	17.33	17.11	16.91
28	19.69	19.17	18.73	18.36	18.04	17.76	17.51	17.28	17.08
29	19.85	19.33	18.90	18.53	18.21	17.93	17.67	17.45	17.24
30	20.00	19.49	19.06	18.69	18.37	18.09	17.84	17.61	17.40
31	20.00	19.64	19.22	18.85	18.53	18.25	17.99	17.77	17.56
32	20.00	19.79	19.37	19.00	18.68	18.40	18.15	17.92	17.71
33	20.00	19.93	19.51	19.15	18.83	18.55	18.30	18.07	17.86
34	20.00	20.00	19.65	19.29	18.97	18.69	18.44	18.21	18.00
35	20.00	20.00	19.78	19.43	19.11	18.83	18.58	18.35	18.14
36	20.00	20.00	19.91	19.56	19.24	18.97	18.71	18.48	18.28
37	20.00	20.00	20.00	19.68	19.37	19.10	18.84	18.62	18.41
38	20.00	20.00	20.00	19.80	19.50	19.22	18.97	18.74	18.54
39	20.00	20.00	20.00	19.92	19.62	19.34	19.10	18.87	18.66
40	20.00	20.00	20.00	20.00	19.73	19.46	19.22	18.99	18.78
41	20.00	20.00	20.00	20.00	19.85	19.58	19.33	19.11	18.90
42	20.00	20.00	20.00	20.00	19.95	19.69	19.44	19.22	19.01
43	20.00	20.00	20.00	20.00	20.00	19.80	19.55	19.33	19.13
44	20.00	20.00	20.00	20.00	20.00	19.90	19.66	19.44	19.23
45	20.00	20.00	20.00	20.00	20.00	20.00	19.76	19.54	19.34
46	20.00	20.00	20.00	20.00	20.00	20.00	19.86	19.64	19.44
47	20.00	20.00	20.00	20.00	20.00	20.00	19.96	19.74	19.54
48	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.84	19.64
49	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.93	19.73
50	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.83
51	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	19.92
52	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00