

NAMA :

TINGKATAN :

SULIT
3472/1
Additional
Mathematics
Paper 1
Ogos
2009
2 Jam



**PEPERIKSAAN PERCUBAAN BERSAMA
SIJIL PELAJARAN MALAYSIA 2009**

**ANJURAN
PERSIDANGAN KEBANGSAAN PENGETUA-PENGETUA
SEKOLAH MENENGAH CAWANGAN NEGERI PERLIS**

ADDITIONAL MATHEMATICS

Paper 1
Kertas 1

Two hours
Dua jam

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Tulis nama dan tingkatan anda pada ruangan yang disediakan.*
2. *Kertas soalan ini adalah dalam dwibahasa.*
3. *Soalan dalam Bahasa Inggeris mendahului soalan yang sepadan dalam Bahasa Melayu.*
4. *Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam Bahasa Inggeris atau Bahasa Melayu.*
5. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.*

<i>Untuk Kegunaan Pemeriksa</i>		
Soalan	Markah Penuh	Markah Diperoleh
1	2	
2	3	
3	4	
4	2	
5	3	
6	3	
7	3	
8	3	
9	3	
10	4	
11	3	
12	4	
13	4	
14	3	
15	3	
16	3	
17	3	
18	4	
19	3	
20	4	
21	3	
22	4	
23	3	
24	3	
25	3	
Jumlah	80	

Kertas soalan ini mengandungi 20 halaman bercetak

The following formulae may be helpful in answering the questions. The symbols given are the ones commonly used.

Rumus-rumus berikut boleh membantu anda menjawab soalan. Simbol-simbol yang diberi adalah yang biasa digunakan.

ALGEBRA

$$1 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$2 \quad a^m \times a^n = a^{m+n}$$

$$3 \quad a^m \div a^n = a^{m-n}$$

$$4 \quad (a^m)^n = a^{mn}$$

$$5 \quad \log_a mn = \log_a m + \log_a n$$

$$6 \quad \log_a \frac{m}{n} = \log_a m - \log_a n$$

$$7 \quad \log_a m^n = n \log_a m$$

$$8 \quad \log_a b = \frac{\log_c b}{\log_c a}$$

$$9 \quad T_n = a + (n-1)d$$

$$10 \quad S_n = \frac{n}{2}[2a + (n-1)d]$$

$$11 \quad T_n = ar^{n-1}$$

$$12 \quad S_n = \frac{a(r^n - 1)}{r - 1} = \frac{a(1 - r^n)}{1 - r}, r \neq 1$$

$$13 \quad S_\infty = \frac{a}{1 - r}, |r| < 1$$

CALCULUS

$$1 \quad y = uv, \quad \frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$$

$$2 \quad y = \frac{u}{v}, \quad \frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$$

$$3 \quad \frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$$

4 Area under a curve

Luas di bawah lengkung

$$= \int_a^b y \, dx \text{ or (atau)}$$

$$= \int_a^b x \, dy$$

5 Volume generated/*Isipadu janaan*

$$= \int_a^b \pi y^2 \, dx \text{ or (atau)}$$

$$= \int_a^b \pi x^2 \, dy$$

GEOMETRY

$$1 \quad \text{Distance/Jarak} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

2 Midpoint/*Titik tengah*

$$(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

3 A point dividing a segment of a line/*Titik yang membahagi suatu tembereng garis*

$$(x, y) = \left(\frac{nx_1 + mx_2}{m + n}, \frac{ny_1 + my_2}{m + n} \right)$$

4 Area of triangle/*Luas segitiga*

$$= \frac{1}{2} |(x_1 y_2 + x_2 y_3 + x_3 y_1) - (x_2 y_1 + x_3 y_2 + x_1 y_3)|$$

$$5 \quad |r| = \sqrt{x^2 + y^2}$$

$$6 \quad \hat{r} = \frac{x\mathbf{i} + y\mathbf{j}}{\sqrt{x^2 + y^2}}$$

STATISTICS/STATISTIK

- 1 $\bar{x} = \frac{\sum x}{N}$
- 2 $\bar{x} = \frac{\sum fx}{\sum f}$
- 3 $\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{N}} = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2}$
- 4 $\sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}} = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$
- 5 $m = L + \left(\frac{\frac{1}{2}N - F}{f_m} \right) C$
- 6 $I = \frac{Q_1}{Q_0} \times 100$
- 7 $\bar{I} = \frac{\sum W_i I_i}{\sum W_i}$
8. ${}^n P_r = \frac{n!}{(n-r)!}$
9. ${}^n C_r = \frac{n!}{(n-r)!r!}$
- 10 $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
- 11 $P(X = r) = {}^n C_r p^r q^{n-r}, p + q = 1$
- 12 Mean/ Min, $\mu = np$
- 13 $\sigma = \sqrt{npq}$
- 14 $Z = \frac{X - \mu}{\sigma}$

TRIGONOMETRY/ TRIGONOMETRI

- 1 Arc length, $s = r\theta$
Panjang lengkok, $s = j\theta$
- 2 Area of sector, $A = \frac{1}{2}r^2\theta$
Luas sektor, $L = \frac{1}{2}j^2\theta$
- 3 $\sin^2 A + \cos^2 A = 1$
- 4 $\sec^2 A = 1 + \tan^2 A$
- 5 $\operatorname{cosec}^2 A = 1 + \cot^2 A$
- 6 $\sin 2A = 2 \sin A \cos A$
- 7 $\cos 2A = \cos^2 A - \sin^2 A$
 $= 2 \cos^2 A - 1$
 $= 1 - 2 \sin^2 A$
- 8 $\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$
- 9 $\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$
- 10 $\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$
- 11 $\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$
- 12 $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
- 13 $a^2 = b^2 + c^2 - 2bc \cos A$
- 14 Area of triangle/ Luas segitiga
 $= \frac{1}{2}ab \sin C$

Answer **all** questions.

Jawab **semua** soalan.

1. Given that $A = \{-2, -1, 1, 2\}$, $B = \{1, 4, 9\}$ and the relation between sets A and B is defined as the set of ordered pairs $\{(-2, 4), (-1, 1), (1, 1), (2, 4)\}$.

Diberi bahawa $A = \{-2, -1, 1, 2\}$, $B = \{1, 4, 9\}$ dan hubungan antara set A dan B dinyatakan sebagai pasangan bertertib $\{(-2, 4), (-1, 1), (1, 1), (2, 4)\}$.

State

Nyatakan

- (a) the range of the relation,
julat hubungan itu,
- (b) the type of relation.
jenis hubungan itu.

[2 marks/ *markah*]

Answer / *Jawapan* : (a) _____

(b) _____

-
2. Given that $f : x \rightarrow 3x + 1$ and $g : x \rightarrow \frac{2x}{x+3}$, $x \neq -3$, find

Diberi bahawa $f : x \rightarrow 3x + 1$ dan $g : x \rightarrow \frac{2x}{x+3}$, $x \neq -3$, cari

- (a) $f(5)$,
- (b) $gf(x)$.

[3 marks/*markah*]

Answer / *Jawapan* : (a) _____

(b) _____

3. Given that $f(x) = 3x - 2$ and $g(x) = mx + 4$, find
Diberi bahawa $f(x) = 3x - 2$ dan $g(x) = mx + 4$, cari
 (a) $f^{-1}(x)$,
 (b) the value of m if $f^{-1}g(2) = 4$.
nilai m jika $f^{-1}g(2) = 4$.

[4 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

4. Given that the roots of a quadratic equation are $\frac{2}{3}$ and -4 . Form the quadratic equation and write it in the form $ax^2 + bx + c = 0$ where a, b and c are constants.

Diberi punca-punca suatu persamaan kuadratik adalah $\frac{2}{3}$ dan -4 .

Bentukkan persamaan kuadratik itu dan tulis dalam bentuk $ax^2 + bx + c = 0$ dengan keadaan a, b dan c adalah pemalar.

[2 marks/markah]

Answer / Jawapan : _____

5. Find the range of values of x for which $x(2x - 3) \leq 3x^2 - 4$.

Hitungkan julat nilai x bagi $x(2x - 3) \leq 3x^2 - 4$.

[3 marks/markah]

Answer / Jawapan : _____

6. Diagram 1 shows the graph for the function $f(x) = a(x + p)^2 + 8$.

Rajah 1 menunjukkan graf bagi fungsi $f(x) = a(x + p)^2 + 8$.

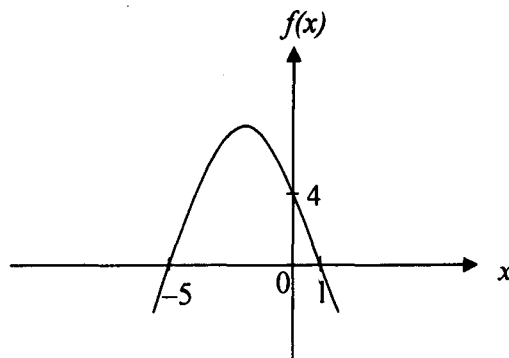


Diagram 1
Rajah 1

Find
Cari

- (a) the value of p ,
nilai p ,
- (b) the maximum value of $f(x)$,
nilai maksimum bagi $f(x)$,
- (c) the value of a .
nilai a .

[3marks/markah]

Answers : (a) $p = \dots\dots\dots$

(b) $\dots\dots\dots$

(c) $a = \dots\dots\dots$

7. Given that $y = \log_5 4$, find the value of 125^y .

Diberi $y = \log_5 4$, cari nilai 125^y

[3 marks/markah]

Answer / Jawapan : _____

8. Calculate
Hitung

$$\frac{\log_3 625 \times \log_{25} 3 \times \log_4 11}{\log_4 1331}$$

[3 marks/markah]

Answer / Jawapan : _____

9. Solve the equation $9^x + 27 = 4(3^{2x})$

Selesaikan persamaan $9^x + 27 = 4(3^{2x})$

[3 marks/markah]

Answer / Jawapan: _____

10. The first term and the last term of an arithmetic progression are -5 and 85 respectively. It is given that the sum of all the terms is 1240 .
Sebutan pertama dan sebutan terakhir bagi satu jangjang arithmetik ialah -5 dan 85 . Diberi bahawa jumlah semua sebutan itu ialah 1240 .

Find
Cari

- a) the number of terms,
bilangan sebutan,
- b) the common difference.
beza sepunya.

[4 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

-
11. Three consecutive terms of a geometric progression are $p + 10$, 24 and $p - 10$, where $p > 0$.
Tiga sebutan berturutan bagi satu jangjang geometri ialah $p + 10$, 24 dan $p - 10$, dengan keadaan $p > 0$.

Find
Cari

- (a) the value of p ,
nilai p ,
- (b) the common ratio.
nisbah sepunya.

[3 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

12. The variables x and y are related by the equation $y = px^q$, where p and q are constants.

A straight line graph is obtained by plotting $\log_{10} y$ against $\log_{10} x$, as shown in Diagram 2.

Pembolehubah x dan y dihubungkan oleh persamaan $y = px^q$, dengan keadaan p dan q ialah pemalar.

Satu graf garis lurus diperoleh dengan memplotkan $\log_{10} y$ melawan $\log_{10} x$ seperti yang ditunjukkan pada Rajah 2.

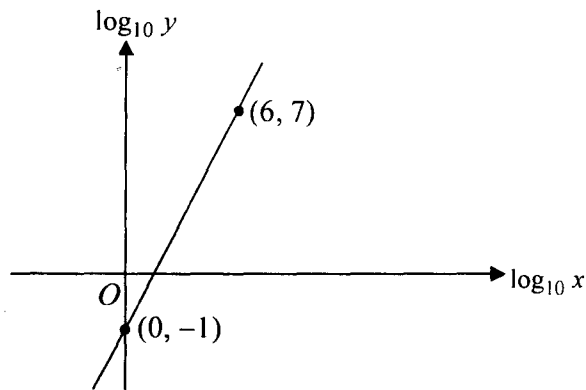


Diagram 2
Rajah 2

- (a) Reduce the equation to linear form.
Tukarkan persamaan itu kepada bentuk linear.
- (b) Find the value of p and of q .
Cari nilai p dan nilai q .

[4 marks/markah]

Answer / Jawapan : (a) _____

(b) $p =$ _____ $q =$ _____

13. The gradient of the straight line with equation $2x - hy + k = 0$ is $-\frac{2}{3}$. If the straight line passes through the point $(-4, 1)$, find the value of h and of k .

Kecerunan suatu garis lurus dengan persamaan $2x - hy + k = 0$ ialah $-\frac{2}{3}$. Jika garis lurus tersebut melalui titik $(-4, 1)$, cari nilai h dan nilai k .

[4 marks/markah]

Answer/ Jawapan : $h =$ _____

$k =$ _____

-
14. Given the points $O(0, 0)$, $P(-2, 1)$ and $Q(3, 13)$.

Diberi titik-titik $O(0, 0)$, $P(-2, 1)$ and $Q(3, 13)$.

- a) Express \overline{PQ} in the form of $\begin{pmatrix} x \\ y \end{pmatrix}$.

Ungkapkan \overline{PQ} dalam bentuk $\begin{pmatrix} x \\ y \end{pmatrix}$.

- b) Find the unit vector in the direction of \overline{PQ} .

Cari unit vektor dalam arah \overline{PQ} .

[3 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

15. Diagram 3 shows a parallelogram $OPQR$. Point S is the intersection of the diagonals.
Rajah 3 menunjukkan satu segiempat selari $OPQR$. Titik S adalah persilangan bagi pepenjuru-pepenjuru.

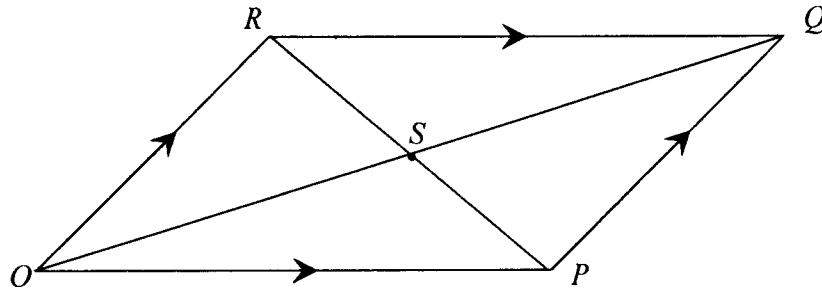


Diagram 3
Rajah 3

It is given that $\overline{OP} = 2\underline{a} + 3\underline{b}$ and $\overline{OR} = 6\underline{a} - \underline{b}$.

Find \overline{SP} .

Diberi bahawa $\overline{OP} = 2\underline{a} + 3\underline{b}$ dan $\overline{OR} = 6\underline{a} - \underline{b}$.

Cari \overline{SP} .

[3 marks/markah]

Answer / Jawapan : _____

16. Diagram 4 shows a circle with centre O.
Rajah 4 menunjukkan sebuah bulatan berpusat O.

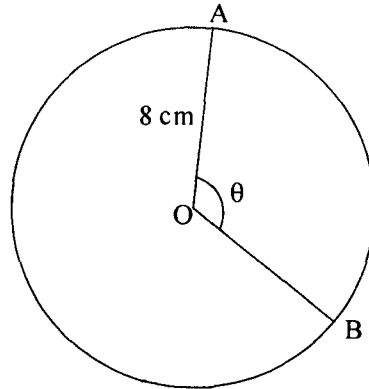


Diagram 4
Rajah 4

Given that the length of the major arc AB is 34.8 cm, find the angle θ in radians.
Diberi panjang lengkok major AB ialah 34.8 cm, cari nilai sudut θ dalam radian.

[3 marks/markah]

Answer/ Jawapan : _____

17. It is given that $y = 2x^2(3x - 4)^3$.
Diberi bahawa $y = 2x^2(3x - 4)^3$.

Find $\frac{dy}{dx}$ when $x = 1$.

Cari $\frac{dy}{dx}$ when $x = 1$.

[3marks/markah]

Answer/ Jawapan : _____

18. The surface area, $A \text{ cm}^2$, of a solid is given by $A = \frac{3\pi r^2}{2} + \frac{6\pi}{r}$. It is given that the rate of change of the surface area is $5 \text{ cm}^2 \text{ s}^{-1}$.

Luas, $A \text{ cm}^2$, bagi suatu pepejal diberi oleh $A = \frac{3\pi r^2}{2} + \frac{6\pi}{r}$. Diberi bahawa kadar perubahan luas pepejal itu ialah $5 \text{ cm}^2 \text{ s}^{-1}$.

Find

Cari

(a) $\frac{dA}{dr}$,

- (b) the rate of change of the radius, in cm s^{-1} , when the radius is 3 cm.
kadar perubahan jejari, dalam cm s^{-1} , apabila jejari adalah 3 cm.

[4 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

19. Given that the gradient function of the curve at point (1, 10) is $3x + 5$.
Find the equation of the curve.

Diberi bahawa fungsi kecerunan bagi lengkung di titik (1, 10) ialah $3x + 5$.

Cari persamaan lengkung itu.

[3marks/markah]

Answer/ Jawapan : _____

20. Solve the equation $3 \cos 2x = 2 - 4 \sin x$ for $0^\circ < x < 360^\circ$.
Selesaikan persamaan $3 \cos 2x = 2 - 4 \sin x$ untuk $0^\circ < x < 360^\circ$.

[4 marks/markah]

Answer/ Jawapan : _____

21. The mean of four numbers is $\sqrt{3k}$. The sum of the squares of the numbers is 112 and the variance is m .
Express k in terms of m .
*Min bagi empat nombor ialah $\sqrt{3k}$. Hasil tambah kuasa dua nombor-nombor itu ialah 112 dan variansnya ialah m .
Ungkapkan k dalam sebutan m .*

[3 marks/markah]

Answer/Jawapan: _____

- 22 A committee consists of 9 people is to be selected from 10 boys and 8 girls.
Satu jawatankuasa yang terdiri daripada 9 orang dipilih daripada 10 orang lelaki dan 8 orang perempuan.

Find

Cari

- (a) the number of different ways the committee can be formed,
bilangan cara yang berlainan jawatankuasa itu boleh dibentuk,
- (b) the number of different ways the committee can be formed if the committee consists of at least 8 boys.
bilangan cara yang berlainan jawatankuasa itu dibentuk jika jawatankuasa itu mengandungi sekurang-kurangnya 8 orang lelaki.

[4 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

- 23 Haziq, Hazmi and Husaini are taking a driving test. The probabilities that Haziq, Hazmi and Husaini passes the test are $\frac{3}{5}$, $\frac{4}{7}$ and $\frac{5}{9}$ respectively.

Haziq, Hazmi dan Husaini menduduki ujian memandu. Kebarangkalian

Haziq, Hazmi dan Husaini lulus ujian itu adalah $\frac{3}{5}$, $\frac{4}{7}$ dan $\frac{5}{9}$ masing-masing.

Find the probabilities that

Cari kebarangkalian bahawa

- (a) none of them passes the test,
tiada antara mereka yang lulus ujian itu,
- (b) at least two of them pass the test.
sekurang-kurangnya dua daripada mereka lulus ujian itu.

[3 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

- 24 In a mid-term examination, 20% of the students of Form Five failed their Additional Mathematics. A sample of 10 students is chosen at random.

Dalam peperiksaan pertengahan penggal, 20% pelajar daripada Tingkatan Lima gagal dalam Matematik Tambahan. Satu sampel terdiri daripada 10 orang pelajar dipilih secara rawak.

Find
Cari

- (a) the mean of the students that failed the Additional Mathematics.
min pelajar yang gagal dalam Matematik Tambahan.
- (b) the probability that at least 1 student passed the Additional Mathematics.
kebarangkalian sekurang-kurangnya seorang pelajar lulus dalam Matematik Tambahan.

[3 marks/markah]

Answer / Jawapan : (a) _____

(b) _____

25. Diagram 5 shows a standard normal distribution graph.
Rajah 5 menunjukkan satu graf taburan normal piawai.

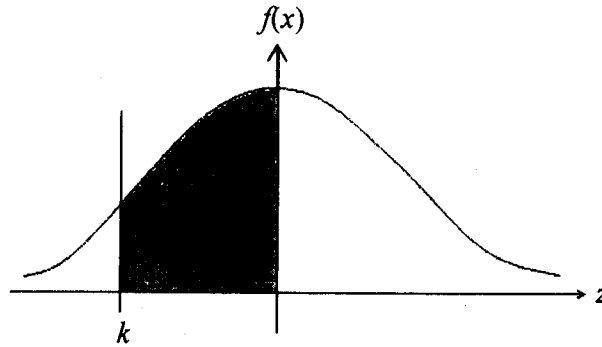


Diagram 5
Rajah 5

The probability represented by the area of the shaded region is 0.3708.

Kebarangkalian yang diwakili oleh luas kawasan berlorek ialah 0.3708.

Find
Cari

- (a) $P(z > k)$,
(b) the value of k .
nilai k .

[3 marks/*markah*]

Answer / *Jawapan* : (a) _____

(b) _____

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of **25** questions.
Kertas soalan ini mengandungi 25 soalan.
2. Answer **all** questions.
Jawab semua soalan.
3. Write your answers in the space provided in the question paper.
Tulis jawapan anda dalam ruang yang disediakan dalam kertas soalan.
4. Show your working. It may help you to get marks.
Tunjukkan langkah-langkah penting dalam kerja mengira anda. Ini boleh membantu anda untuk mendapatkan markah.
5. If you wish to change your answer, cross out the answer that you have done. Then write down the new answer.
Sekiranya anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baru.
6. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
7. The marks allocated for each question are shown in brackets.
Markah yang diperuntukkan bagi setiap soalan ditunjukkan dalam kurungan.
8. A list of formulae is provided on page 2 and 3.
Satu senarai rumus disediakan di halaman 2 dan 3.
9. A booklet of the normal distribution table is provided.
Satu sifir taburan normal disediakan.
10. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.
11. Hand in this question paper to the invigilator at the end of the examination.
Serahkan kertas soalan ini kepada pengawas peperiksaan di akhir peperiksaan.

**KEBARANGKALIAN Hujung Atas $Q(z)$
BAGI TABURAN NORMAL $N(0, 1)$**

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
											TOLAK									
0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641	4	8	12	16	20	24	28	32	36	
0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247	4	8	12	16	20	24	28	32	36	
0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859	4	8	12	15	19	23	27	31	35	
0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483	4	7	11	15	19	22	26	30	34	
0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121	4	7	11	14	18	22	25	29	32	
0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776	3	7	10	14	17	20	24	27	31	
0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451	3	7	10	13	16	19	23	26	29	
0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148	3	6	9	12	15	18	21	24	27	
0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867	3	5	8	11	14	16	19	22	25	
0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611	3	5	8	10	13	15	18	20	23	
1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379	2	5	7	9	12	14	16	19	21	
1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170	2	4	6	8	10	12	14	16	18	
1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985	2	4	6	7	9	11	13	15	17	
1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823	2	3	5	6	8	10	11	13	14	
1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681	1	3	4	6	7	8	10	11	13	
1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559	1	2	4	5	6	7	8	10	11	
1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455	1	2	3	4	5	6	7	8	9	
1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367	1	2	3	4	4	5	6	7	8	
1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294	1	1	2	3	4	4	5	6	6	
1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233	1	1	2	2	3	4	4	5	5	
2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183	0	1	1	2	2	3	3	4	4	
2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143	0	1	1	2	2	2	3	3	4	
2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110	0	1	1	1	2	2	2	3	3	
2.3	.0107	.0104	.0102		.0 ⁹ 90	.0 ⁹ 64	.0 ⁹ 39	.0 ⁹ 14			0	1	1	1	1	2	2	2	2	
									.0 ⁸ 89	.0 ⁸ 66	.0 ⁸ 42	2	5	7	9	12	14	16	18	21
2.4	.0 ⁸ 20	.0 ⁷ 98	.0 ⁷ 76	.0 ⁷ 55	.0 ⁷ 34						2	4	6	8	11	13	15	17	19	
						.0 ⁷ 14	.0 ⁶ 95	.0 ⁶ 76	.0 ⁶ 57	.0 ⁶ 39	2	4	6	7	9	11	13	15	17	
2.5	.0 ⁶ 21	.0 ⁶ 04	.0 ⁵ 87	.0 ⁵ 70	.0 ⁵ 54	.0 ⁵ 39	.0 ⁵ 23	.0 ⁵ 08	.0 ⁴ 94	.0 ⁴ 80	2	3	5	6	8	9	11	12	14	
2.6	.0 ⁴ 66	.0 ⁴ 53	.0 ⁴ 40	.0 ⁴ 27	.0 ⁴ 15	.0 ⁴ 02	.0 ³ 91	.0 ³ 79	.0 ³ 68	.0 ³ 57	1	2	3	5	6	7	8	9	10	
2.7	.0 ³ 47	.0 ³ 36	.0 ³ 26	.0 ³ 17	.0 ³ 07	.0 ² 98	.0 ² 89	.0 ² 80	.0 ² 72	.0 ² 64	1	2	3	4	5	6	7	8	9	
2.8	.0 ² 56	.0 ² 48	.0 ² 40	.0 ² 33	.0 ² 26	.0 ² 19	.0 ² 12	.0 ² 05	.0 ¹ 99	.0 ¹ 93	1	1	2	3	4	4	5	6	6	
2.9	.0 ¹ 87	.0 ¹ 81	.0 ¹ 75	.0 ¹ 69	.0 ¹ 64	.0 ¹ 59	.0 ¹ 54	.0 ¹ 49	.0 ¹ 44	.0 ¹ 39	0	1	1	2	2	3	3	4	4	
3.0	.0 ¹ 35	.0 ¹ 31	.0 ¹ 26	.0 ¹ 22	.0 ¹ 18	.0 ¹ 14	.0 ¹ 11	.0 ¹ 07	.0 ¹ 04	.0 ¹ 00	0	1	1	2	2	2	3	3	4	
3.1	.0 ⁰ 98	.0 ⁰ 935	.0 ⁰ 904		.0 ⁰ 874	.0 ⁰ 845	.0 ⁰ 816	.0 ⁰ 789			3	6	9	13	16	19	22	25	28	
									.0 ⁰ 762	.0 ⁰ 736	.0 ⁰ 711	3	6	8	11	14	17	20	22	25
3.2	.0 ⁰ 687	.0 ⁰ 664	.0 ⁰ 641	.0 ⁰ 619	.0 ⁰ 598						2	5	7	10	12	15	17	20	22	
						.0 ⁰ 577	.0 ⁰ 557	.0 ⁰ 538	.0 ⁰ 519	.0 ⁰ 501	2	4	6	8	9	11	13	15	18	20
3.3	.0 ⁰ 483	.0 ⁰ 466	.0 ⁰ 450	.0 ⁰ 434	.0 ⁰ 419						2	3	5	6	8	10	11	13	14	
						.0 ⁰ 404	.0 ⁰ 390	.0 ⁰ 376	.0 ⁰ 362	.0 ⁰ 349	1	3	4	5	7	8	9	10	12	
3.4	.0 ⁰ 337	.0 ⁰ 325	.0 ⁰ 313	.0 ⁰ 302	.0 ⁰ 291	.0 ⁰ 280	.0 ⁰ 270	.0 ⁰ 260	.0 ⁰ 251	.0 ⁰ 242	1	2	3	4	5	6	7	8	9	
3.5	.0 ⁰ 233	.0 ⁰ 224	.0 ⁰ 216	.0 ⁰ 208	.0 ⁰ 200	.0 ⁰ 193	.0 ⁰ 185	.0 ⁰ 178	.0 ⁰ 172	.0 ⁰ 165	1	1	2	3	4	4	5	6	7	
3.6	.0 ⁰ 159	.0 ⁰ 153	.0 ⁰ 147	.0 ⁰ 142	.0 ⁰ 136	.0 ⁰ 131	.0 ⁰ 126	.0 ⁰ 121	.0 ⁰ 117	.0 ⁰ 112	0	1	1	2	2	3	3	4	5	
3.7	.0 ⁰ 108	.0 ⁰ 104	.0 ⁰ 100	.0 ⁰ 96	.0 ⁰ 92	.0 ⁰ 88	.0 ⁰ 85	.0 ⁰ 82	.0 ⁰ 78	.0 ⁰ 75										
3.8	.0 ⁰ 72	.0 ⁰ 69	.0 ⁰ 67	.0 ⁰ 64	.0 ⁰ 62	.0 ⁰ 59	.0 ⁰ 57	.0 ⁰ 54	.0 ⁰ 52	.0 ⁰ 50										
3.9	.0 ⁰ 48	.0 ⁰ 46	.0 ⁰ 44	.0 ⁰ 42	.0 ⁰ 41	.0 ⁰ 39	.0 ⁰ 37	.0 ⁰ 36	.0 ⁰ 34	.0 ⁰ 33										