

TERHAD



NAMA	
KELAS	

i-MODUL KECEMERLANGAN SPM SMKA DAN SABK 2023

SIJIL PELAJARAN MALAYSIA 2023 (SET 2)

MATEMATIK TAMBAHAN

3472/1

KERTAS 1

Okt./Nov.

2 jam

Dua jam

**JANGAN BUKA KERTAS SOALAN INI
SEHINGGA DIBERITAHU**

- Tulis nama dan kelas anda pada ruangan yang disediakan.*
- Kertas soalan ini adalah dalam dwibahasa.*
- Soalan dalam Bahasa Melayu mendahului soalan yang sepadan dalam Bahasa Inggeris.*
- Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam Bahasa Inggeris atau Bahasa Melayu.*
- Calon dikehendaki membaca maklumat di halaman 22.*

Untuk Kegunaan Pemeriksa		
Soalan	Markah Penuh	Markah Diperoleh
Bahagian A		
1	3	
2	4	
3	6	
4	3	
5	6	
6	7	
7	5	
8	4	
9	7	
10	5	
11	6	
12	8	
Bahagian B		
13	8	
14	8	
15	8	
Jumlah	80	

Kertas soalan ini mengandungi 22 halaman bercetak.

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**RUMUS
FORMULAE**

- | | |
|---|--|
| <p>1 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$</p> <p>2 $a^m \times a^n = a^{m+n}$</p> <p>3 $a^m \div a^n = a^{m-n}$</p> <p>4 $(a^m)^n = a^{mn}$</p> <p>5 $\log_a mn = \log_a m + \log_a n$</p> <p>6 $\log_a \frac{m}{n} = \log_a m - \log_a n$</p> <p>7 $\log_a m^n = n \log_a m$</p> <p>8 $\log_a b = \frac{\log_c b}{\log_c a}$</p> <p>9 $T_n = a + (n-1)d$</p> <p>10 $S_n = \frac{n}{2}[2a + (n-1)d]$</p> <p>11 $T_n = ar^{n-1}$</p> <p>12 $S_n = \frac{a(r^n - 1)}{r - 1} = \frac{a(1 - r^n)}{1 - r}, r \neq 1$</p> <p>13 $S_\infty = \frac{a}{1 - r}, r < 1$</p> <p>14 $y = uv, \frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$</p> <p>15 $y = \frac{u}{v}, \frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$</p> <p>16 $\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$</p> <p>17 Luas di bawah lengkung
<i>Area under a curve</i>
$= \int_a^b y \, dx$ atau (or)
$= \int_a^b x \, dy$</p> | <p>18 Isi padu kisaran
<i>Volume of revolution</i>
$= \int_a^b \pi y^2 \, dx$ atau (or)
$= \int_a^b \pi x^2 \, dy$</p> <p>19 $I = \frac{Q_1}{Q_0} \times 100$</p> <p>20 $\bar{I} = \frac{\sum W_i I_i}{\sum W_i}$</p> <p>21 ${}^n P_r = \frac{n!}{(n-r)!}$</p> <p>22 ${}^n C_r = \frac{n!}{(n-r)!r!}$</p> <p>23 $P(X = r) = {}^n C_r p^r q^{n-r}, p + q = 1$</p> <p>24 Min / Mean, $\mu = np$</p> <p>25 $\sigma = \sqrt{npq}$</p> <p>26 $Z = \frac{X - \mu}{\sigma}$</p> <p>27 Panjang lengkok, $s = j\theta$
<i>Arc length, $s = r\theta$</i></p> <p>28 Luas sektor, $L = \frac{1}{2} j^2 \theta$
<i>Area of sector, $A = \frac{1}{2} r^2 \theta$</i></p> <p>29 $\sin^2 A + \cos^2 A = 1$
$\sin^2 A + \cos^2 A = 1$</p> <p>30 $\sec^2 A = 1 + \tan^2 A$
$\sec^2 A = 1 + \tan^2 A$</p> <p>31 $\operatorname{cosec}^2 A = 1 + \cot^2 A$
$\operatorname{cosec}^2 A = 1 + \cot^2 A$</p> |
|---|--|

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$$32 \quad \sin 2A = 2 \sin A \cos A$$

$$\sin 2A = 2 \sin A \cos A$$

$$33 \quad \cos 2A = \cos^2 A - \sin^2 A$$

$$= 2 \cos^2 A - 1$$

$$= 1 - 2 \sin^2 A$$

$$\cos 2A = \cos^2 A - \sin^2 A$$

$$= 2 \cos^2 A - 1$$

$$= 1 - 2 \sin^2 A$$

$$34 \quad \tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

$$35 \quad \sin (A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$\sin (A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$36 \quad \cos (A \pm B) = \cos A \cos B \mp \sin A \sin B$$

$$\cos (A \pm B) = \cos A \cos B \mp \sin A \sin B$$

$$37 \quad \tan (A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

$$38 \quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$39 \quad a^2 = b^2 + c^2 - 2bc \cos A$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$40 \quad \text{Luas segi tiga / Area of triangle}$$

$$= \frac{1}{2} ab \sin C$$

41 Titik yang membahagi suatu tembereng garis
A point dividing a segment of a line

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

$$42 \quad \text{Luas segi tiga / Area of triangle}$$

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

$$43 \quad |\mathbf{r}| = \sqrt{x^2 + y^2}$$

$$44 \quad \hat{\mathbf{r}} = \frac{x\mathbf{i} + y\mathbf{j}}{\sqrt{x^2 + y^2}}$$

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Bahagian A

[64 markah]

Jawab semua soalan.

- 1 Cari julat nilai-nilai x jika ungkapan $6 - 7x - 3x^2$ sentiasa negatif.
Find the range of values of x if the expression $6 - 7x - 3x^2$ is always negative.

[3 markah]

[3 marks]

Jawapan / Answer:

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- 2 Diberi bahawa $y = t - 4t^2$ dan $x = 5t + 4$. Dengan menggunakan petua rantai, cari $\frac{dy}{dx}$ dalam sebutan x .

Given that $y = t - 4t^2$ and $x = 5t + 4$. By using chain rule, find $\frac{dy}{dx}$ in terms of x .

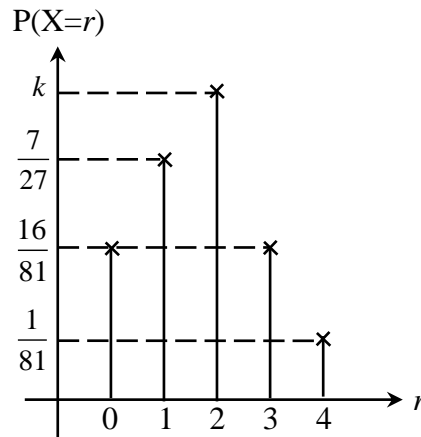
[4 markah]

[4 marks]

Jawapan / Answer:

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- 3 (a) Rajah 1 menunjukkan graf bagi taburan binomial $X \sim B(4, p)$.
 Diagram 1 shows the graph of binomial distribution $X \sim B(4, p)$.



Rajah 1/ Diagram 1

Cari nilai bagi k dan p .

[3 markah]

Find the value of k and of p .

[3 marks]

- (b) Diberi X ialah pembolehubah rawak selanjar di mana $X \sim N(12.45, 25)$. Cari nilai k apabila $P(|X| \geq k) = 0.7154$.

[3 markah]

Given X is a continuous random variable where $X \sim N(12.45, 25)$. Find the value of k when $P(|X| \geq k) = 0.7154$.

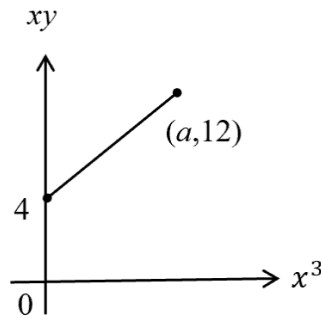
[3 marks]

Jawapan / Answer:

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- 4 Rajah 2 menunjukkan pemboleh ubah x dan y dihubungkan oleh persamaan $y = 4x^2 - \frac{b}{x}$ dengan keadaan a dan b ialah pemalar. Suatu garis lurus diperolehi dengan memplot xy melawan x^3 .
Diagram 2 shows the variables x and y are related by the equation $y = 4x^2 - \frac{b}{x}$ such that a and b are constants. A straight line graph is obtained by plotting xy against x^3 .



Rajah 2 / Diagram 2

Cari nilai a dan b .

Find the value of a and of b .

[3 markah]

[3 marks]

Jawapan / Answer:

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- 5 (a) Diberi bahawa sebutan kedua suatu jangjang aritmetik ialah 12 dan sebutan kesepuluhnya ialah 52. Cari
- Given that the second term of an arithmetic progression is 12 and the tenth term is 52. Find*
- (i) beza sepunya jangjang itu,
the common difference of the progression,
- (ii) sebutan pertama jangjang itu.
the first term of the progression.
- [3 markah]
[3 marks]
- (b) Diberi $m + 2$, $2m + 4$ dan $5m + 4$ adalah tiga sebutan berturutan bagi suatu jangjang geometri. Tentukan nilai-nilai yang mungkin bagi m . [3 markah]
- It is given that $m + 2$, $2m + 4$ and $5m + 4$ are three consecutive terms of a geometric progression. Find the possible values of m .* [3 marks]

Jawapan / Answer:

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- 6 (a) Diberi fungsi kecerunan bagi suatu lengkung ialah $4x - 10$ dan lengkung itu melalui titik $(8, 4)$. Cari persamaan lengkung itu. [3 markah]
Given that the gradient function of a curve is $4x - 10$ and the curve passes through point $(8, 4)$. Find the equation of the curve. [3 marks]
- (b) Diberi bahawa $\frac{d}{dx}\left[\frac{5}{1-x^2}\right] = g(x)$, cari $\int 2g(x)dx$. [1 markah]
Given that $\frac{d}{dx}\left[\frac{5}{1-x^2}\right] = g(x)$, find $\int 2g(x)dx$. [1 mark]
- (c) Diberi $\int_3^k f(y)dy = \frac{3}{2}$ cari nilai k dengan keadaan $\int_3^k [2 - f(y)]dy = 4$. [3 markah]
Given $\int_3^k f(y)dy = \frac{3}{2}$ find the value of k such that $\int_3^k [2 - f(y)]dy = 4$. [3 marks]

Jawapan / Answer:

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- 7 (a) Selesaikan persamaan berikut :

Solve the equations :

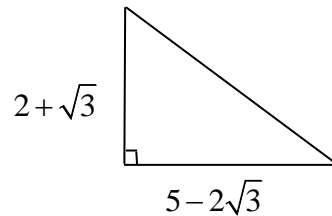
$$3^{3x} = 54 + 3^{3x-1}$$

[3 markah]

[3 marks]

- (b) Rajah 4 menunjukkan sebuah segitiga bersudut tegak.

Diagram 4 shows a right angle triangle.



Rajah 4 / Diagram 4

Diberi luas segitiga tersebut adalah $q + \frac{\sqrt{3}}{2}$. Cari nilai q .

[2 markah]

Given that the area of the triangle is $q + \frac{\sqrt{3}}{2}$. Find the value of q .

[2 marks]

Jawapan / Answer:

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8 Diberi fungsi r dan s sebagai $r : x \rightarrow 6x$, $s : x \rightarrow \frac{4}{x-6}$, $x \neq a$.

Given the function r and s as $r : x \rightarrow 6x$, $s : x \rightarrow \frac{4}{x-6}$, $x \neq a$.

(a) Nyatakan nilai a .

[1 markah]

State the value of a .

[1 mark]

(b) Cari nilai bagi $s(12)$.

[1 markah]

Find the value of $s(12)$.

[1 mark]

(c) Cari nilai bagi k jika $rs(k) = -12$.

[2 markah]

Find the value of k if $rs(k) = -12$.

[2 marks]

Jawapan / Answer:

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- 9 (a) Selesaikan persamaan $2\cos^2 2x + 3\sin 2x - 3 = 0$ untuk $0 \leq x \leq 360^\circ$.

Solve the equation $2\cos^2 2x + 3\sin 2x - 3 = 0$ for $0 \leq x \leq 360^\circ$.

[4 markah]

[4 marks]

- (b) Diberi bahawa $\tan 2x = \frac{5}{12}$ dengan keadaan x adalah sudut refleks. Cari nilai $\cos^2 x$.

Given $\tan 2x = \frac{5}{12}$ such that x is a reflex angle. Find the value of $\cos^2 x$.

[3 markah]

[3 marks]

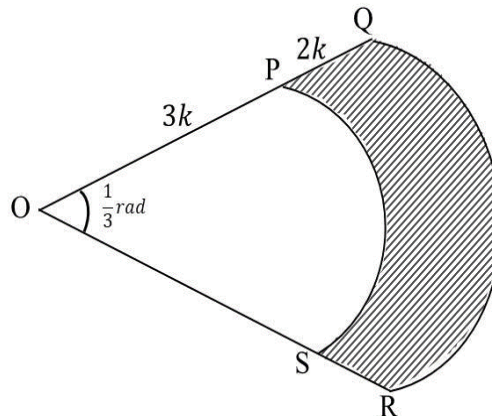
Jawapan / Answer:

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- 10 Rajah 5 menunjukkan dua sektor OPS dan OQR bersudut $\frac{1}{3}$ rad, berpusatkan di O .

Diagram 5 shows two sectors OPS and OQR have angle $\frac{1}{3}$ rad, with centre O .



Rajah 5 / Diagram 5

- (a) Cari nilai k , jika luas kawasan berlorek $PQRS$ ialah 24 cm^2 .
Find the value of k if the area of the shaded region $PQRS$ is 24 cm^2 .
- (b) Seterusnya, hitung perimeter kawasan berlorek.
Hence, calculate the perimeter of the shaded region.

[5 markah]

[5 marks]

Jawapan / Answer:

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- 11 (a) Rajah 6 menunjukkan enam keping kad berhuruf.

Diagram 6 shows six letter cards.



Rajah 6 / Diagram 6

Cari bilangan cara untuk menyusun 4 keping kad huruf di mana huruf vokal duduk bersebelahan dan berakhir dengan huruf konsonan.

Find the number of different ways to arrange 4 letter cards which vocals must be adjacent and end with a consonant letter.

[2 markah]

[2 marks]

- (b) Diberi digit-digit 1, 5, 7, 7, 7, 8. Cari

Given the digits 1, 5, 7, 7, 7, 8. Find

- (i) bilangan nombor yang melebihi 500 000 dapat dibentuk,
the number of different numbers greater than 500 000 can be formed,
- (ii) bilangan nombor 6 digit yang berlainan tidak berakhir dengan 81.
the number of different 6 digit numbers does not end with 81.

[4 markah]

[4 marks]

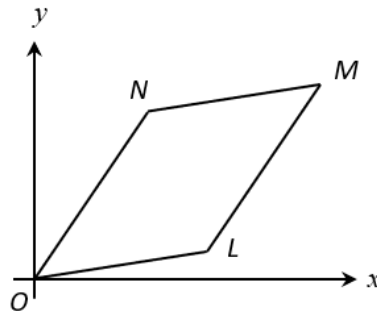
Jawapan / Answer:

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- 12 Rajah 7 menunjukkan $OLMN$ ialah sebuah segi empat selari dengan keadaan $\overrightarrow{OL} = 4\mathbf{i} + \mathbf{j}$ dan $\overrightarrow{OM} = 6\mathbf{i} + 5\mathbf{j}$.

Diagram 7 shows $OLMN$ is a parallelogram such that $\overrightarrow{OL} = 4\mathbf{i} + \mathbf{j}$ and $\overrightarrow{OM} = 6\mathbf{i} + 5\mathbf{j}$.



Rajah 7 / Diagram 7

Cari

Find

(a) \overrightarrow{ON} ,

(b) Seterusnya suatu titik P diberi dengan keadaan $\overrightarrow{OP} = -8\mathbf{i} + 19\mathbf{j}$.

Then a point P is given such that $\overrightarrow{OP} = -8\mathbf{i} + 19\mathbf{j}$.

(i) Cari \overrightarrow{LN} dan \overrightarrow{NP} .

Find \overrightarrow{LN} and \overrightarrow{NP} .

(ii) Tunjukkan titik-titik L , N dan P segaris.

Show that the points L , N and P are collinear.

[8 markah]

[8 marks]

Jawapan / Answer:

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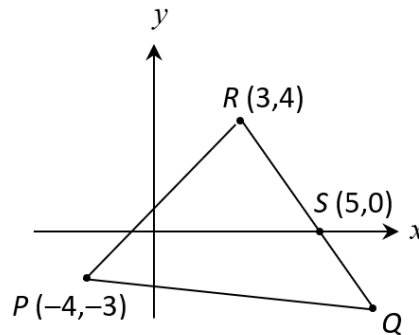
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Bahagian B

[16 markah]

Bahagian ini mengandungi **tiga** soalan. Jawab **dua** soalan.

- 13 Rajah 8 menunjukkan segitiga PQR . Garis RQ menyalang paksi- x pada titik S .
Diagram 8 shows a triangle PQR . Line RQ intersects x -axis at point S .



Rajah 8 / Diagram 8

- (a) Diberi $RS : SQ = 2:3$, cari

Given $RS : SQ = 2:3$, find

- (i) koordinat Q .
the coordinates of Q .
- (ii) luas, dalam unit^2 , segi tiga PQR .
area of triangle PQR , in unit^2 .

[5 markah]

[5 marks]

- (b) Titik Z bergerak dengan keadaan jaraknya dari titik P adalah sentiasa dua kali jaraknya dari titik Q . Cari persamaan lokus Z .

Z is a moving point such that its distance from point P is always two times its distance from point Q . Find the equation of the locus of point Z .

[3 markah]

[3 marks]

Jawapan / Answer:

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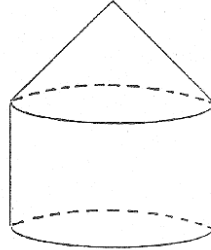
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Jawapan / *Answer*:

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- 14 Rajah 9 sebuah pepejal yang terbentuk daripada silinder berjari x cm dan sebuah kon di atasnya. Diberi panjang sendeng kon itu ialah $2x$ cm dan isi padu silinder ialah 192π cm³.

Diagram 9 shows a solid formed by joining a cylinder with radius x cm and a cone on top of it. Given the length of the cone slant is $2x$ cm and the volume of the cylinder is 192π cm³.



Rajah 9
Diagram 9

- (a) Tunjukkan bahawa jumlah luas permukaan pepejal itu, A cm², diberi oleh persamaan $A = 3\pi x^2 + \frac{384\pi}{x}$. [2 markah]

Show that total surface area of the solid, A cm², is given by $A = 3\pi x^2 + \frac{384\pi}{x}$. [2 marks]

- (b) Hitung jejari silinder apabila luas permukaan pepejal itu minimum. [3 markah]
Calculate the radius of the cylinder when the surface area of the solid is minimum. [3 marks]

- (c) Diberi luas permukaan pepejal itu berubah dengan kadar 84π cm² s⁻¹. Cari kadar perubahan jejari ketika jejaringnya 8 cm. [3 markah]

Given that the surface area of the solid is increasing at a rate of 84π cm² s⁻¹. Find rate of change of the radius at the instant when the radius is 8 cm. [3 marks]

Jawapan / Answer:

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Jawapan / *Answer*:

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15 (a) Selesaikan persamaan berikut:

Solve the following equation:

(i) $x - 7\sqrt{x} = -12$

(ii) $\log_4 x + \log_{16} 3x = -1$

[5 markah]

[5 marks]

(b) Wang simpanan Shahida selepas n tahun dalam sebuah bank ialah RM $1500(1+0.08)^n$. Hitung bilangan tahun minimum supaya wang simpanannya melebihi RM 20 000.

[3 markah]

Shahida's savings after n years in a bank is RM $1500(1+0.08)^n$. Calculate the minimum number of years so that her savings exceed RM 20 000.

[3 marks]

Jawapan / Answer:

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**THE UPPER TAIL PROBABILITY $Q(z)$ FOR THE NORMAL DISTRIBUTION $N(0, 1)$
KEBARANGKALIAN Hujung Atas $Q(z)$ BAGI TABURAN NORMAL $N(0, 1)$**

z	0	1	2	3	4	5	6	7	8	9	Minus / Tolak									
											1	2	3	4	5	6	7	8	9	
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	.4219	.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	15	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		.02990	.02964	.02939	.02914			0	1	1	1	1	2	2	2	2	
									.02889	.02866	.02842	2	5	7	9	12	14	16	16	21
2.4	.02820	.02798	.02776	.02755	.02734						2	4	6	8	11	13	15	17	19	
						.02714	.02695	.02676	.02657	.02639	2	4	6	7	9	11	13	15	17	
2.5	.02621	.02604	.02587	.02570	.02554	.02539	.02523	.02508	.02494	.02480	2	3	5	6	8	9	11	12	14	
2.6	.02466	.02453	.02440	.02427	.02415	.02402	.02391	.02379	.02368	.02357	1	2	3	5	6	7	9	9	10	
2.7	.02347	.02336	.02326	.02317	.02307	.02298	.02289	.02280	.02272	.02264	1	2	3	4	5	6	7	8	9	
2.8	.02256	.02248	.02240	.02233	.02226	.02219	.02212	.02205	.02199	.02193	1	1	2	3	4	4	5	6	6	
2.9	.02187	.02181	.02175	.02169	.02164	.02159	.02154	.02149	.02144	.02139	0	1	1	2	2	3	3	4	4	
3.0	.02135	.02131	.02126	.02122	.02118	.02114	.02111	.02107	.02104	.02100	0	1	1	2	2	2	3	3	4	

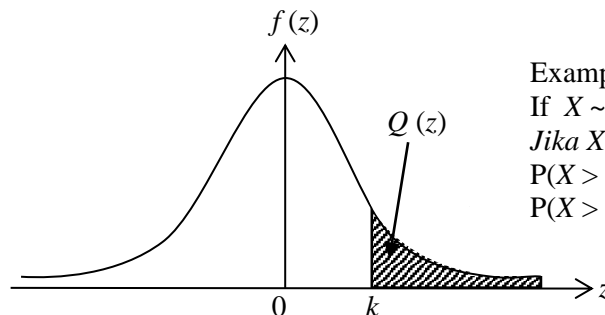
For negative z use relation:

Bagi z negatif guna hubungan:

$$Q(z) = 1 - Q(-z) = P(-z)$$

$$f(z) = \frac{1}{\sqrt{2\pi}} \exp\left(-\frac{1}{2}z^2\right)$$

$$Q(z) = \int_k^{\infty} f(z) dz$$



Example / Contoh:

If $X \sim N(0, 1)$, then

Jika $X \sim N(0, 1)$, maka

$$P(X > k) = Q(k)$$

$$P(X > 2.1) = Q(2.1) = 0.0179$$

[Lihat halaman sebelah

TERHAD

**MAKLUMAT UNTUK CALON
INFORMATION FOR CANDIDATES**

1. Kertas soalan ini mengandungi **dua** bahagian: **Bahagian A** dan **Bahagian B**.
*This question paper consists of **two** sections: **Section A** and **Section B**.*
2. Jawab **semua** soalan dalam **Bahagian A** dan mana-mana **dua** soalan daripada **Bahagian B**.
*Answer **all** questions in **Section A** and any **two** questions from **Section B**.*
3. Tulis jawapan anda pada ruang yang disediakan dalam kertas soalan.
Write your answers in the spaces provided in this question paper.
4. Tunjukkan langkah-langkah penting dalam kerja mengira anda. Ini boleh membantu anda untuk mendapatkan markah.
Show your working. It may help you to get marks.
5. Sekiranya anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baru.
If you wish to change your answer, cross out the answer that you have done. Then write down the new answer.
6. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
The diagrams in the questions provided are not drawn to scale unless stated.
7. Markah yang diperuntukkan bagi setiap soalan ditunjukkan dalam kurungan.
The marks allocated for each question are shown in brackets.
8. Satu senarai rumus disediakan di halaman 2 dan 3.
A list of formulae is provided on pages 2 and 3.
9. Jadual Kebarangkalian Hujung Atas $Q(z)$ Bagi Taburan Normal $N(0, 1)$ disediakan di halaman 21.
The Upper Tail Probability $Q(z)$ For the Normal Distribution $N(0, 1)$ Table is provided on page 21.
10. Anda dibenarkan menggunakan kalkulator saintifik.
You may use a scientific calculator.
11. Serahkan kertas soalan ini kepada pengawas peperiksaan pada akhir peperiksaan.
Hand in this question paper to the invigilator at the end of the examination.