

3472/2  
MATEMATIK TAMBAHAN  
TINGKATAN 5  
PERCUBAAN SPM 2023  
2 JAM

NO KAD PENGENALAN

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Nama Pelajar : .....  
Tingkatan : .....



MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)

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MODUL KOLEKSI ITEM  
PEPERIKSAAN PERCUBAAN SPM  
TINGKATAN 5  
2023

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MATEMATIK TAMBAHAN (KERTAS 1)  
MASA : DUA JAM (2 JAM )

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**JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU**

1. Tulis nama dan tingkatan pada ruangan yang disediakan.
2. Soalan ini adalah dalam dwi bahasa.
3. Soalan ini mempunyai **dua** bahagian, **Bahagian A** dan **Bahagian B**.
4. Jawab **semua** soalan **Bahagian A**, dan **dua** soalan daripada **Bahagian B**.
5. Jawapan hendaklah ditulis pada ruangan yang disediakan.
6. Rajah yang dilukis tidak mengikut skala kecuali dinyatakan.
7. Senarai formula ditunjukkan pada halaman 2 dan 3.

<i>Untuk Kegunaan Pemeriksa</i>			
Pemeriksa:			
Bahagian	Soalan	Markah penuh	Markah diperoleh
<b>A</b>	1	5	
	2	5	
	3	6	
	4	5	
	5	5	
	6	5	
	7	5	
	8	5	
	9	4	
	10	7	
	11	6	
	12	6	
<b>B</b>	13	8	
	14	8	
	15	8	
<b>JUMLAH</b>		<b>80</b>	

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*Kertas soalan ini mengandungi 27 halaman bercetak dan 1 halaman tidak bercetak.*

## RUMUS FORMULAE

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

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

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

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

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

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

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

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

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

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

$$11. T_n = ar^{n-1}$$

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

$$13. S_n = \frac{a}{r - 1}, |r| < 1$$

$$14. y = uv, \frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$$

$$15. y = \frac{u}{v}, \frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$$

$$16. \frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$$

17. Luas di bawah lengkung

*Area under a curve*

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

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

18. Isi padu kisaran

*Volume of revolution*

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

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

$$19. I = \frac{Q_1}{Q_0} \times 100$$

$$20. \bar{I} = \frac{\sum w_i I_i}{\sum w_i}$$

$$21. {}^n P_r = \frac{n!}{(n-r)!}$$

$$22. {}^n C_r = \frac{n!}{(n-r)!r!}$$

$$23. P(X = r) = {}^n C_r p^r q^{n-r}, p + q = 1$$

24. Min / Mean,  $\mu = np$

$$25. \sigma = \sqrt{npq}$$

$$26. z = \frac{X - \mu}{\sigma}$$

27. Panjang lengkok,  $s = j\theta$

*Arc length,  $s = r\theta$*

28. Luas sektor,  $L = \frac{1}{2} j^2 \theta$

*Area of sector,  $L = \frac{1}{2} j^2 \theta$*

$$29. \sin^2 A + \operatorname{cosec}^2 A = 1$$

$$\sin^2 A + \operatorname{csc}^2 A = 1$$

$$30. \operatorname{sek}^2 A = 1 + \tan^2 A$$

$$\operatorname{sec}^2 A = 1 + \tan^2 A$$

$$31. \operatorname{kosek}^2 A = 1 + \operatorname{kot}^2 A$$

$$\operatorname{cosec}^2 A = 1 + \operatorname{cot}^2 A$$

$$32. \begin{aligned} \sin 2A &= 2 \sin A \cos A \\ \sin 2A &= 2 \sin A \cos A \end{aligned}$$

$$\begin{aligned} \cos 2A &= \cos^2 A - \sin^2 A \\ &= 2\cos^2 A - 1 \\ &= 1 - 2\sin^2 A \end{aligned}$$

$$33. \begin{aligned} \cos 2A &= \cos^2 A - \sin^2 A \\ &= \cos^2 A - 1 \\ &= 1 - 2\sin^2 A \end{aligned}$$

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

$$35. \begin{aligned} \sin(A \pm B) &= \sin A \cos B \pm \cos A \sin B \\ \sin(A \pm B) &= \sin A \cos B \pm \cos A \sin B \end{aligned}$$

$$36. \begin{aligned} \cos(A \pm B) &= \cos A \cos B \mp \sin A \sin B \\ \cos(A \pm B) &= \cos A \cos B \mp \sin A \sin B \end{aligned}$$

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

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

$$39. \begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ a^2 &= b^2 + c^2 - 2bc \cos A \end{aligned}$$

$$40. \begin{aligned} \text{Luas segi tiga / Area of triangle} \\ &= \frac{1}{2} ab \sin C \end{aligned}$$

$$41. \begin{aligned} \text{Titik yang membahagi suatu tembereng garis} \\ \text{A point dividing a segment of a line} \\ (x, y) &= \left( \frac{nx_1 + mx_2}{m+n}, \frac{ny_1 + my_2}{m+n} \right) \end{aligned}$$

$$42. \begin{aligned} \text{Luas segi tiga / Area of triangle} \\ &= \frac{1}{2} |(x_1 y_2 + x_2 y_3 + x_3 y_1) - (x_2 y_1 + x_3 y_2 + x_1 y_3)| \end{aligned}$$

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

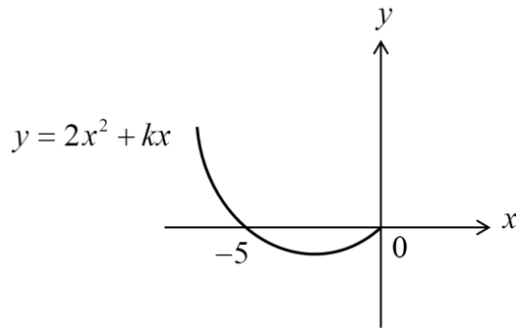
$$44. \hat{r} = \frac{x\hat{i} + y\hat{j}}{\sqrt{x^2 + y^2}}$$

**Bahagian A**

[50 markah]

1. Rajah 1 menunjukkan graf  $y = 2x^2 + kx$ .

Diagram 1 shows the graph  $y = 2x^2 + kx$ .



Rajah 1  
Diagram 1

Berdasarkan graf, jadual  $\frac{y}{x}$  melawan  $x$  diperoleh seperti jadual berikut.

Based on the graph, a table of  $\frac{y}{x}$  against  $x$  is obtained as shown in the table.

$\frac{y}{x}$	-6	$q$
$x$	$p$	-2

Hitung nilai-nilai  $k$ ,  $p$  dan  $q$ .

[5 markah]

Calculate the values of  $k$ ,  $p$  and  $q$ .

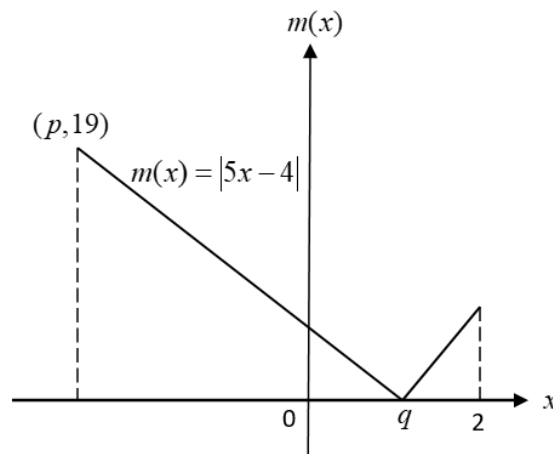
[5 marks]

Jawapan / Answer :



2. Rajah 2 menunjukkan graf fungsi  $m(x) = |5x - 4|$  bagi  $p \leq x \leq 2$ .

Diagram 2 shows the graph function  $m(x) = |5x - 4|$  where  $p \leq x \leq 2$ .



Rajah 2  
Diagram 2

- (a) Cari nilai bagi  $p$  dan  $q$ . [3 markah]  
*Find the values of  $p$  and of  $q$ .* [3 marks]
- (b) Seterusnya, nyatakan domain apabila julatnya melebihi 4. [2 markah]  
*Hence, state the domain when the range is greater than 4.* [2 marks]

Jawapan / Answer :

3. (a) Diberi bahawa  $\sec \theta = \frac{1}{h}$  dengan keadaan  $\theta$  ialah sudut tirus. Cari  $\sin^2 \frac{\theta}{2}$ .

[3 markah]

Given  $\sec \theta = \frac{1}{h}$  where  $\theta$  is an acute angle. Find  $\sin^2 \frac{\theta}{2}$ .

[3 marks]

- (b) Selesaikan persamaan  $3 + 4\cos 2x = -\sin x$  untuk  $0^\circ \leq x \leq 360^\circ$ .

[3 markah]

Solve the equation  $3 + 4\cos 2x = -\sin x$  for  $0^\circ \leq x \leq 360^\circ$ .

[3 marks]

Jawapan / Answer :

4. Suatu jangjang aritmetik dan jangjang geometri mempunyai sebutan pertama yang sama. Kedua-duanya mempunyai beza sepunya dan nisbah sepunya yang sama iaitu  $\frac{1}{2}$ . Sebutan ketujuh jangjang aritmetik itu ialah 13, manakala sebutan kesebelas jangjang aritmetik itu sama dengan hasil tambah  $n$  sebutan pertama jangjang geometri itu.

*An arithmetic progression and a geometric progression have the same first term. Both have the same common difference and common ratio which is  $\frac{1}{2}$ . The seventh term of the arithmetic progression is 13, while the eleventh term of the arithmetic progression is equal to the sum of  $n$  of the first term of the geometric progression.*

Cari

*Find*

- |   |            |
|---|------------|
| (a) sebutan pertama kedua-dua jangjang itu. | [2 markah] |
| <i>first term for both progression</i>      | [2 marks]  |
| (b) nilai $n$                               | [3 markah] |
| <i>value of <math>n</math></i>              | [3 marks]  |

Jawapan / Answer :





5. (a) Tunjukkan bahawa  $27^{y+1} + 3^{3y}$  boleh ditulis dalam bentuk  $a(b^y)$ , dengan  $a$  dan  $b$  adalah pemalar. Seterusnya, cari nilai  $a$  dan nilai  $b$ . [2 markah]

*Show that  $27^{y+1} + 3^{3y}$  can be written in the form  $a(b^y)$ , where  $a$  and  $b$  are constants. Hence, find the values of  $a$  and of  $b$ . [2 marks]*

- (b) Selesaikan persamaan yang berikut

*Solve the following equation*

$$\log_p(5 + x^2) = \log_{\sqrt{p}}(3 - x)$$

[3 markah]

[3 marks]

Jawapan / Answer :

6. (a) Tukarkan 0.168168168... kepada pecahan tanpa menggunakan kaedah janjang.

[2 markah]

*Convert 0.168168168... to a fraction without using progression method. [2 marks]*

- (b) Penyelesaian bagi persamaan  $\sqrt{12}x - \sqrt{5}x = \sqrt{6}$  adalah  $\frac{p\sqrt{2} + \sqrt{q}}{7}$ , dengan keadaan

$p$  dan  $q$  adalah pemalar. Tanpa menggunakan kalkulator, cari nilai bagi  $p$  dan  $q$ .

[3 markah]

*The solution of the equation  $\sqrt{12}x - \sqrt{5}x = \sqrt{6}$  is  $\frac{p\sqrt{2} + \sqrt{q}}{7}$ , where  $p$  and  $q$  are constants. Without using a calculator, find the values of integer  $p$  and  $q$ .*

[3 marks]

Jawapan / Answer :

7. Encik Salleh mempunyai sebidang tanah berbentuk segi tiga. Dua sisi tanah tersebut mempunyai panjang  $(2x+10)$  m dan  $(5x-20)$  m masing-masing. Sudut di antara kedua-dua sisi tersebut ialah  $30^\circ$ . Cari panjang kedua-dua sisi tanah tersebut dalam integer terhampir, jika luas tanah tersebut ialah  $1700 \text{ m}^2$ . [5 markah]

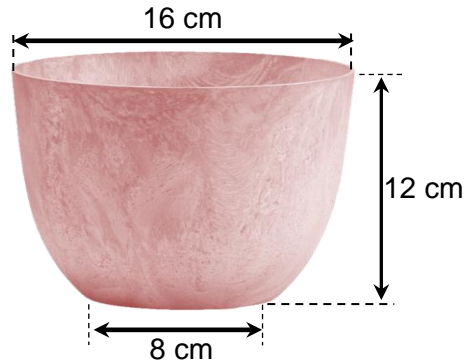
*Mr. Salleh has a triangular piece of land. The two sides of the land have lengths  $(2x+10)$  m and  $(5x-20)$  m respectively. The angle between the two sides is  $30^\circ$ . Find the length of both sides of the land to the nearest integer, if the area of the land is  $1700 \text{ m}^2$ .*

[5 marks]

Jawapan / Answer :

8. Rajah 3 menunjukkan sebuah pasu bunga di mana permukaan sisi dalaman pasu itu boleh diwakili oleh persamaan  $y = ax^2$ .

*Diagram 3 shows a flower vase where the interior side surface of the vase can be represented by an equation  $y = ax^2$ .*



Rajah 3  
Diagram 3

Dengan menggunakan ukuran yang diberi, cari isipadu pasu bunga itu dalam  $\text{cm}^3$ .  
Tunjukkan jawapan dalam sebutan  $\pi$ .

[5 markah]

*Using the measurements given, find the volume, in  $\text{cm}^3$  of the flower vase. Show the answer in term of  $\pi$ .*

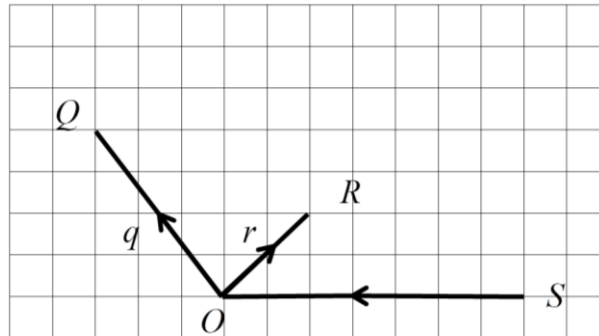
[5 marks]

Jawapan / Answer :



9. Rajah 4 menunjukkan vektor  $\overrightarrow{OQ}$ ,  $\overrightarrow{OR}$  dan  $\overrightarrow{SO}$  di atas grid segi empat sama bersisi 1 unit.

Diagram 4 shows vectors  $\overrightarrow{OQ}$ ,  $\overrightarrow{OR}$  and  $\overrightarrow{SO}$  on a square grid with sides of 1 unit.



Rajah 4  
Diagram 4

- (a) Cari  $|\overrightarrow{-OQ}|$ . [2 markah]

Find  $|\overrightarrow{-OQ}|$ . [2 marks]

- (b) Diberi bahawa  $\overrightarrow{OQ} = \underline{\underline{q}}$  dan  $\overrightarrow{OR} = \underline{\underline{r}}$ , ungkapkan  $\overrightarrow{RQ}$  dalam sebutan  $\underline{\underline{q}}$  dan  $\underline{\underline{r}}$ .

[2 markah]

Given that  $\overrightarrow{OQ} = \underline{\underline{q}}$  dan  $\overrightarrow{OR} = \underline{\underline{r}}$ , express  $\overrightarrow{RQ}$  in terms of  $\underline{\underline{q}}$  and  $\underline{\underline{r}}$ . [2 marks]

Jawapan / Answer :

10. (a) Cari bilangan nombor genap yang dapat dibentuk daripada semua angka 2, 5, 7 dan 9 dengan semua angka selain 2 muncul tepat dua kali. [3 markah]

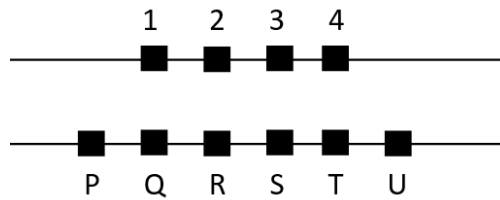
*Find the number of even numbers that can be formed from all the numbers 2, 5, 7 and 9 with all the number other than 2 appearing exactly twice.* [3 marks]

- (b) (i) Tanpa guna kalkulator, cari nilai bagi  ${}^5C_3$ .

*Without using kalkulator, cari nilai bagi  ${}^5C_3$ .*

- (ii) Rajah 5 menunjukkan dua garis selari dengan 4 titik dan 6 titik masing – masing.

*Diagram 5 shows two parallel line with 4 and 6 points respectively.*



Rajah 5  
Diagram 5

Cari bilangan cara yang berbeza untuk membentuk segitiga jika segitiga tersebut disambung ke titik nombor 3. [4 markah]

*Find the number of different ways to forms the triangles if these triangles are connected to the point number 3.* [4 marks]

Jawapan / Answer :



11. (a) Diberi dua fungsi,  $y = f(u)$  dan  $u = g(x)$ . Menggunakan idea had, buktikan,  
*Given two functions,  $y = f(u)$  and  $u = g(x)$ . Using the idea of limits, prove that,*

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

[3 markah]

[3 marks]

- (b) Diberi  $y = 5t^2 + 2t$  dan  $x = 1 - 2t$ . Cari  $\frac{dy}{dx}$  dalam sebutan  $x$ .

[3 markah]

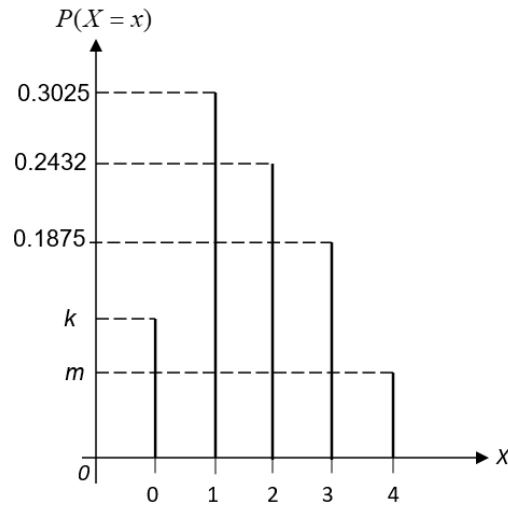
*Given  $y = 5t^2 + 2t$  and  $x = 1 - 2t$ . Find  $\frac{dy}{dx}$  in terms of  $x$ .*

[3 marks]

Jawapan / Answer :

12. (a) Rajah 6 menunjukkan graf taburan binomial  $X \sim B(4, p)$ .

*Diagram 6 shows the graph of a binomial distribution  $X \sim B(4, p)$ .*



Rajah 6  
Diagram 6

Ungkapkan

*Express*

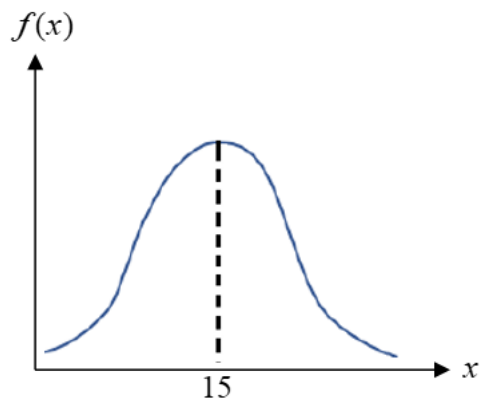
- (i)  $p$  dalam sebutan  $m$ .  
 *$p$  in terms of  $m$ .*
- (ii)  $P(X \geq 1)$  dalam sebutan  $k$ .  
 *$P(X \geq 1)$  terms of  $k$ .*

[4 markah]

[4 marks]

(b) Rajah 7 menunjukkan graf taburan normal bagi pemboleh ubah rawak  $X \sim N(\mu, 9)$ .

*Diagram 7 shows the normal distribution graph for a random variable  $X \sim N(\mu, 9)$ .*



Rajah 7  
Diagram 7

Nyatakan

*State*

- (i) nilai  $\mu$ ,  
*the value of  $\mu$ ,*
- (ii) nilai bagi sisihan piawai.  
*value of standard deviation.*

[2 markah]

[2 marks]

Jawapan / Answer :



**BAHAGIAN B**

[16 markah]

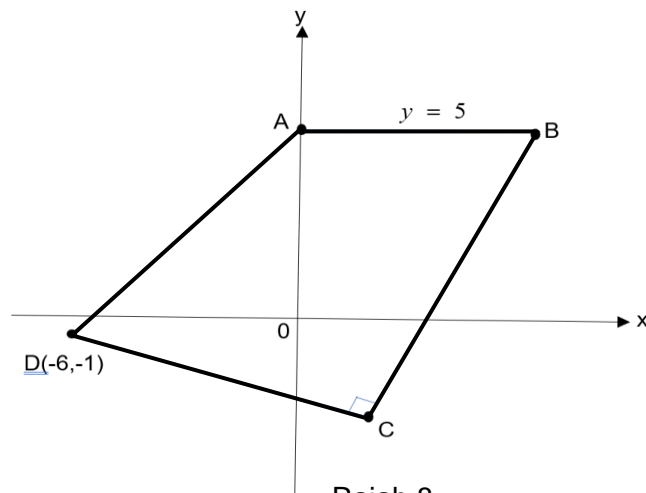
Bahagian ini mengandungi **tiga** soalan. Jawab **dua** soalan.

- 13 (a) Cari julat nilai  $x$  jika  $y < 10$  dan  $2x^2 - 3y + 4x = 0$ . [4 markah]  
*Find the range of values of  $x$  if  $y < 10$  and  $2x^2 - 3y + 4x = 0$ . [4 marks]*
- (b) Diberi  $2x^2 - 8x - 10 = a(x+b)^2 + c$  dengan keadaan  $a, b$  dan  $c$  ialah pemalar.  
 Cari nilai  $a, b$  dan  $c$  dan seterusnya cari nilai minimum bagi ungkapan  $2x^2 - 8x - 10$ . [4 markah]  
*Given that  $2x^2 - 8x - 10 = a(x+b)^2 + c$  where  $a, b$  and  $c$  are constant.  
 Find the values of  $a, b$  and  $c$  hence find the minimum value for expression  $2x^2 - 8x - 10$ . [4 marks]*

Jawapan / Answer :



14. Rajah 8 menunjukkan sisi empat  $ABCD$ . Titik  $A$  terletak pada paksi -  $y$ .  
 Diagram 8 shows the four sides  $ABCD$ . Point  $A$  lies on the  $y$ -axis.



Rajah 8  
Diagram 8

Persamaan garis lurus  $BC$  ialah  $y - 2x + 9 = 0$

The equation of the straight line  $BC$  is  $y - 2x + 9 = 0$

(a) Cari

Find

- (i) persamaan garis lurus  $CD$ .  
the equation of straight line  $CD$
- (ii) koordinat titik  $C$ .  
the coordinate of point  $C$

[5 markah]

[5 marks]

(b) Cari luas segiempat  $ABCD$ .

[3 markah]

Find the area of quadrilateral  $ABCD$ .

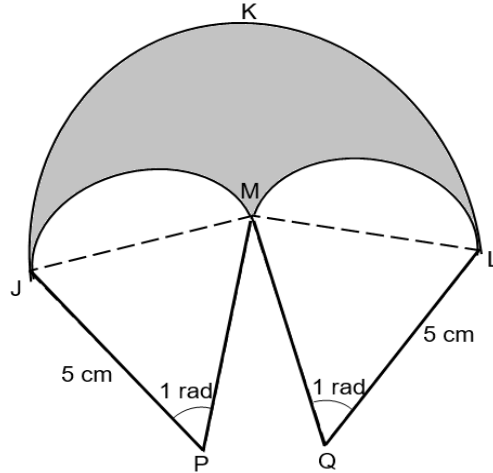
[3 marks]

Jawapan / Answer :





15. Rajah 9 menunjukkan satu sektor bulatan  $MJKL$  berpusat  $M$  dan dua sektor bulatan  $PJM$  dan  $QLM$  yang masing – masing berpusat di  $P$  dan  $Q$ . Diberi sudut major  $JML$  ialah  $3.6$  rad. *Diagram 9 shows a sector  $MJKL$  centered at  $M$  and two sectors  $PJM$  and  $QLM$  centered at  $P$  and  $Q$  respectively. Given the major angle  $JML$  is  $3.6$  rad.*



Rajah 4  
Diagram 4

Cari

Find

- |   |            |
|---|------------|
| (a) jejari sektor bulatan $MJKL$ ,                    | [2 markah] |
| <i>radius of the <math>MJKL</math> circle sector,</i> | [2 marks]  |
| (b) perimeter rantau berlorek,                        | [2 markah] |
| <i>perimeter of the shaded region,</i>                | [2 marks]  |
| (c) luas rantau berlorek.                             | [4 markah] |
| <i>area of the shaded region.</i>                     | [4 marks]  |

Jawapan / Answer :



**KEBARANGKALIAN HUJUNG ATAS Q(z) BAGI TABURAN NORMAL N(0, 1)**  
**THE UPPER TAIL PROBABILITY Q(z) FOR THE NORMAL DISTRIBUTION N(0,1)**

z	0									Minus / Tolak									
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641	4	8	12	16	20	24	28	32	36
0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247	4	8	12	16	20	24	28	32	36
0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859	4	8	12	15	19	23	27	31	35
0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483	4	7	11	15	19	22	26	30	34
0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121	4	7	11	15	18	22	25	29	32
0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776	3	7	10	14	17	20	24	27	31
0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451	3	7	10	13	16	19	23	26	29
0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148	3	6	9	12	15	18	21	24	27
0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867	3	5	8	11	14	16	19	22	25
0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611	3	5	8	10	13	15	18	20	23
1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379	2	5	7	9	12	14	16	19	21
1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170	2	4	6	8	10	12	14	16	18
1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985	2	4	6	7	9	11	13	15	17
1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823	2	3	5	6	8	10	11	13	14
1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681	1	3	4	6	7	8	10	11	13
1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559	1	2	4	5	6	7	8	10	11
1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455	1	2	3	4	5	6	7	8	9
1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367	1	2	3	4	4	5	6	7	8
1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294	1	1	2	3	4	4	5	6	6
1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233	1	1	2	2	3	4	4	5	5
2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183	0	1	1	2	2	3	3	4	4
2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143	0	1	1	2	2	2	3	3	4
2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110	0	1	1	1	2	2	2	3	3
2.3	0.0107	0.0104	0.0102								0	1	1	1	1	2	2	2	2
				0.0 <sup>3</sup> 990	0.0 <sup>3</sup> 964	0.0 <sup>3</sup> 939	0.0 <sup>3</sup> 914				3	5	8	10	13	15	18	20	23
								0.0 <sup>2</sup> 889	0.0 <sup>2</sup> 866	0.0 <sup>2</sup> 842	2	5	7	9	12	14	16	16	21
2.4	0.0 <sup>2</sup> 820	0.0 <sup>2</sup> 798	0.0 <sup>2</sup> 776	0.0 <sup>2</sup> 755	0.0 <sup>2</sup> 734						2	4	6	8	11	13	15	17	19
						0.0 <sup>2</sup> 714	0.0 <sup>2</sup> 695	0.0 <sup>2</sup> 676	0.0 <sup>2</sup> 657	0.0 <sup>2</sup> 639	2	4	6	7	9	11	13	15	17
2.5	0.0 <sup>2</sup> 621	0.0 <sup>2</sup> 604	0.0 <sup>2</sup> 587	0.0 <sup>2</sup> 570	0.0 <sup>2</sup> 554	0.0 <sup>2</sup> 539	0.0 <sup>2</sup> 523	0.0 <sup>2</sup> 508	0.0 <sup>2</sup> 494	0.0 <sup>2</sup> 480	2	3	5	6	8	9	11	12	14
2.6	0.0 <sup>2</sup> 466	0.0 <sup>2</sup> 453	0.0 <sup>2</sup> 440	0.0 <sup>2</sup> 427	0.0 <sup>2</sup> 415	0.0 <sup>2</sup> 402	0.0 <sup>2</sup> 391	0.0 <sup>2</sup> 379	0.0 <sup>2</sup> 368	0.0 <sup>2</sup> 357	1	2	3	5	6	7	9	9	10
2.7	0.0 <sup>2</sup> 347	0.0 <sup>2</sup> 336	0.0 <sup>2</sup> 326	0.0 <sup>2</sup> 317	0.0 <sup>2</sup> 307	0.0 <sup>2</sup> 298	0.0 <sup>2</sup> 289	0.0 <sup>2</sup> 280	0.0 <sup>2</sup> 272	0.0 <sup>2</sup> 264	1	2	3	4	5	6	7	8	9
2.8	0.0 <sup>2</sup> 256	0.0 <sup>2</sup> 248	0.0 <sup>2</sup> 240	0.0 <sup>2</sup> 233	0.0 <sup>2</sup> 226	0.0 <sup>2</sup> 219	0.0 <sup>2</sup> 212	0.0 <sup>2</sup> 205	0.0 <sup>2</sup> 199	0.0 <sup>2</sup> 193	1	1	2	3	4	4	5	6	6
2.9	0.0 <sup>2</sup> 187	0.0 <sup>2</sup> 181	0.0 <sup>2</sup> 175	0.0 <sup>2</sup> 169	0.0 <sup>2</sup> 164	0.0 <sup>2</sup> 159	0.0 <sup>2</sup> 154	0.0 <sup>2</sup> 149	0.0 <sup>2</sup> 144	0.0 <sup>2</sup> 139	0	1	1	2	2	3	3	4	4
3.0	0.0 <sup>2</sup> 135	0.0 <sup>2</sup> 131	0.0 <sup>2</sup> 126	0.0 <sup>2</sup> 122	0.0 <sup>2</sup> 118	0.0 <sup>2</sup> 114	0.0 <sup>2</sup> 111	0.0 <sup>2</sup> 107	0.0 <sup>2</sup> 104	0.0 <sup>2</sup> 100	0	1	1	2	2	2	3	3	4

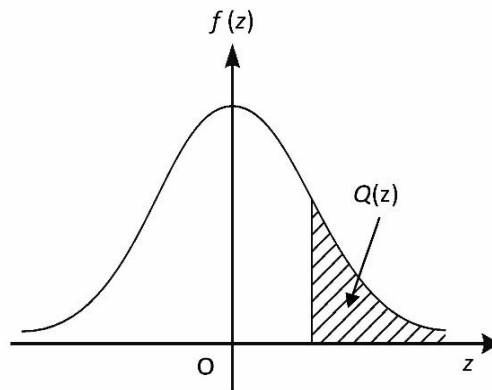
Bagi z negative guna hubungan:

For negative z use relation:

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

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

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



Example / Contoh:

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

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

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

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