

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



قَسَمٌ بِكَ عَنْ قَعْنُوادٍ اِنْ مَجْلِسٍ قَعْتُوا  
مَعَهُمْ كَرَاهِيًا سَكُوْلَهُمْ مَعَهُمْ كَرَاهِيًا  
يَا يَاسَنَ اِسْلَامَ كَلَنَتَن



**PEPERIKSAAN PERCUBAAN SPM**  
**TINGKATAN 5**  
**TAHUN 2025 M / 1447 H**

Matematik Tambahan  
Ogos 2025  
2 jam

**MATEMATIK TAMBAHAN**  
**KERTAS 1**

**JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU**

1. Tuliskan nama dan tingkatan anda di ruangan yang disediakan.
2. Kertas peperiksaan ini adalah dalam dwibahasa.
3. Soalan dalam bahasa Melayu mendahului soalan yang sepadan dalam bahasa Inggeris.
4. Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Melayu atau bahasa Inggeris.
5. Calon dikehendaki membaca arahan di mukasurat 2.

| Untuk kegunaan pemeriksa |        |              |                   |
|--------------------------|--------|--------------|-------------------|
| Bahagian                 | Soalan | Markah penuh | Markah diperolehi |
| <b>A</b><br>[ 64 M]      | 1      | 5            |                   |
|                          | 2      | 5            |                   |
|                          | 3      | 5            |                   |
|                          | 4      | 7            |                   |
|                          | 5      | 4            |                   |
|                          | 6      | 6            |                   |
|                          | 7      | 4            |                   |
|                          | 8      | 5            |                   |
|                          | 9      | 5            |                   |
|                          | 10     | 6            |                   |
|                          | 11     | 6            |                   |
|                          | 12     | 6            |                   |
| <b>B</b><br>[ 16 M]      | 13     | 8            |                   |
|                          | 14     | 8            |                   |
|                          | 15     | 8            |                   |
| <b>TOTAL</b>             |        | <b>80</b>    |                   |

Kertas peperiksaan ini mengandungi 25 halaman bercetak dan 3 halaman tidak bercetak

3472/2

**[ Lihat halaman sebelah**  
**SULIT**

**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**, mana-mana **dua** soalan daripada **Bahagian B**  
*Answer **all** questions in **Section A**, **any two** questions from **Section B** .*
3. Tulis jawapan anda dalam ruang yang disediakan dalam kertas peperiksaan.  
*Write your answers in the spaces provided in the 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 baharu.  
*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 dan ceraian soalan ditunjukkan dalam kurungan.  
*The marks allocated for each question and sub-part of a question are shown in brackets.*
8. Satu senarai rumus disediakan di halaman **3** dan **4**.  
*A list of formulae is provided on pages **3** and **4**.*
9. Anda dibenarkan menggunakan kalkulator saintifik  
*You may use a scientific calculator.*

# RUMUS FORMULAE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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*

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

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

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

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

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

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

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

$$24. \quad \text{Min / Mean, } \mu = np$$

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

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

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

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

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

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

$$29. \quad \sin^2 A + \cos^2 A = 1$$

$$\sin^2 A + \cos^2 A = 1$$

$$30. \quad \sec^2 A = 1 + \tan^2 A$$

$$\sec^2 A = 1 + \tan^2 A$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Bahagian A**

[64 markah]

Jawab **semua** soalan

- 1 (a) Nisbahkan penyebut dan permudahkan  $\frac{5}{\sqrt{5}-5}$ .  
*Rationalise the denominator and simplify  $\frac{5}{\sqrt{5}-5}$ .* [2 markah/marks]
- (b) Diberi  $2^{4x} = r$ ,  $2^y = s$ , dan  $4^{2x+y} = 7+16^x$ , ungkapkan  $r$  dalam sebutan  $s$ .  
*Given  $2^{4x} = r$ ,  $2^y = s$ , and  $4^{2x+y} = 7+16^x$ , express  $r$  in terms of  $s$ .* [3 markah/marks]

Jawapan / Answer :

- 2 Diberi bahawa  $f(x) = 3x + 2c$ , dengan keadaan  $c$  ialah pemalar.  
*Given the function  $f(x) = 3x + 2c$ , where  $c$  is a constant.*

- (a) Ungkapkan  $c$  dalam sebutan  $k$  apabila  $f(k - 1) = 5c$ .  
*Express  $c$  in terms of  $k$  when  $f(k - 1) = 5c$ .*

[2 markah/marks]

- (b) Tentukan nilai  $c$  jika  
*Determine the value of  $c$  if*

- (i) imej fungsi itu adalah sentiasa tiga kali objeknya di bawah pemetaan  $f(x)$ .  
*the image of the function is always three times its object under the mapping of  $f(x)$ .*
- (ii)  $f^{-1}(c + 1) = c - 1$

[3 markah/marks]

Jawapan / Answer :

- 3 Pada awal tahun 2020, Farah melabur sebanyak RM1 500 dalam sebuah skim simpanan yang memberikan dividen tahunan sebanyak 8%. Setiap tahun, Farah melaburkan semula jumlah asal berserta semua dividen yang diterimanya. Hitung  
*At the start of 2020, Farah invested RM1 500 in a savings scheme that gives annual dividends of 8%. Each year, Farah reinvested the original investment together with all the dividends she received. Calculate*
- (a) nisbah pelaburan Farah pada awal tahun 2021 kepada pelaburannya pada awal tahun 2020,  
*the ratio of Farah's investment at the start of 2021 to her investment at the start of 2020,*  
[2 markah/ marks]
- (b) tahun apabila pelaburan Farah melebihi RM2 500 buat kali pertama.  
*the year when Farah's investment exceeds RM2 500 for the first time.*  
[3 markah/ marks]

Jawapan / Answer :

- 4 Diberi bahawa lengkung  $y = 2x(3 - x)^4$  melalui titik Q(2,4). Cari  
*It is given that the curve  $y = 2x(3 - x)^4$  passes through the point Q(2,4). Find*

- (a) kecerunan tangen kepada lengkung itu pada titik Q,  
*the gradient of the tangent to the curve at point Q,*
- (b) persamaan normal kepada lengkung itu pada titik Q.  
*the equation of the normal to the curve at point Q.*

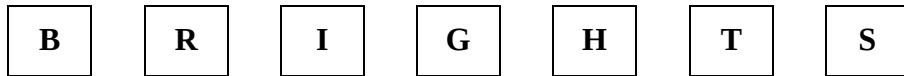
[4 markah/ marks]

[3 markah/ marks]

Jawapan / Answer :



- 5 Rajah 1 menunjukkan tujuh keping kad huruf.  
*Diagram 1 shows seven letter cards.*



Rajah / Diagram 1

Suatu kod lima huruf dibentuk dengan menggunakan lima daripada kad-kad itu.  
*A five-letter code is to be formed using of these cards.*

Cari

*Find*

- (a) bilangan kod lima huruf yang berlainan yang dapat dibentuk,  
*the number of different five-letter codes that can be formed,* [1 markah/ mark]
- (b) bilangan kod lima huruf yang berlainan yang bermula dengan huruf vokal dan berakhir dengan huruf konsonan.  
*the number of different five-letter codes which begin with a vowel and end with a consonant.*

[3 markah/ marks]

Jawapan / Answer :

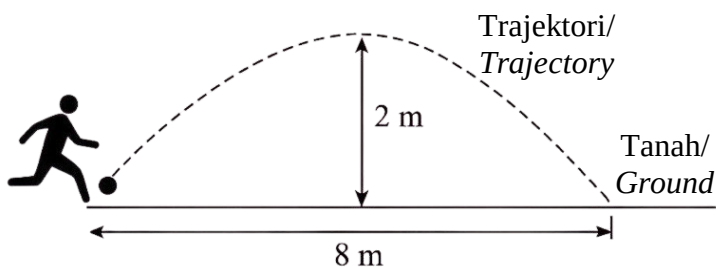
- 6 85% daripada pelanggan di sebuah pasar raya gemar ais krim vanila. Suatu sampel yang terdiri daripada  $n$  orang pelanggan dipilih secara rawak dari pasar raya tersebut.  
*85% of the customers in a supermarket enjoy vanilla ice cream. A sample of  $n$  customers is randomly selected from the supermarket.*
- (a) Jika kebarangkalian semua pelanggan yang dipilih gemar ais krim vanila ialah 0.1038, cari nilai  $n$ .  
*If the probability of all the selected customers enjoy vanilla ice cream is 0.1038, find the value of  $n$ .*
- [3 markah/ marks]
- (b) Berdasarkan jawapan di (a), cari kebarangkalian bahawa kurang daripada tiga orang pelanggan gemar ais krim vanila.  
*Based on the answer in (a), find the probability that there are less than three customers who enjoy vanilla ice cream.*

[3 markah/ marks]

Jawapan / Answer :

- 7 Rajah 2 di bawah menunjukkan trajektori bola sepak yang ditendang yang mengikut lengkung parabola.

*The Diagram 2 below shows the trajectory of a kicked football which follows a parabolic curve.*



Rajah 2  
Diagram 2

Diberi bahawa jarak mendatar dari tempat bola ditendang ialah  $x$  m dan ketinggian bola dari tanah ialah  $y$  m, ungkapkan trajektori dalam bentuk persamaan  $y = a(x - h)^2 + k$ .

*Given that the horizontal distance from where the ball is kicked is  $x$  m and the height of the ball from the ground is  $y$  m, express the trajectory in the form  $y = a(x - h)^2 + k$ .*

[4 markah/ marks]

Jawapan / Answer :

- 8 Diberi bahawa  $\tan A = \frac{5}{12}$  dan  $\tan B = -\frac{8}{15}$ , dengan keadaan  $A$  ialah sudut tirus dan  $B$  ialah sudut refleks. Cari

*It is given that  $\tan A = \frac{5}{12}$  and  $\tan B = -\frac{8}{15}$ , such that  $A$  is an acute angle and  $B$  is a reflex angle. Find*

(a)  $\sin(A + B)$

[3 markah/ marks]

(b)  $\tan(A - B)$

[2 markah/ marks]

Jawapan / Answer :

- 9 Diberi vektor kedudukan  $S$ ,  $T$ , dan  $U$  masing-masing ialah  $\underline{i} + \underline{j}$ ,  $3\underline{i} - 2\underline{j}$  dan  $6\underline{i} + k\underline{j}$ .  
Cari

*It is given that the position vectors of  $S$ ,  $T$ , and  $U$  are  $\underline{i} + \underline{j}$ ,  $3\underline{i} - 2\underline{j}$  and  $6\underline{i} + k\underline{j}$  respectively. Find*

- (a)  $\overrightarrow{ST}$  dalam bentuk  $x\underline{i} + y\underline{j}$ ,  
 $\overrightarrow{ST}$  in the form of  $x\underline{i} + y\underline{j}$ ,

[2 markah/ marks]

- (b) Nilai  $k$  jika  $\overrightarrow{TU}$  adalah selari dengan paksi- $x$ .  
*The value of  $k$  if  $\overrightarrow{TU}$  is parallel to the  $x$ -axis.*

[3 markah/ marks]

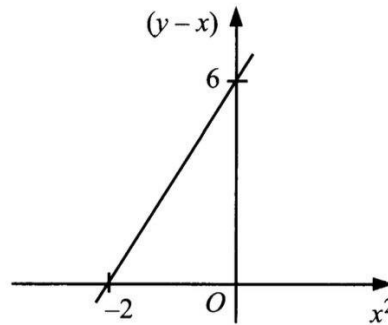
Jawapan / Answer :

- 10 (a) Diberi  $\int_1^m (2x - 6)dx = -4$ , cari nilai  $m$ .  
Given  $\int_1^m (2x - 6)dx = -4$ , find the value of  $m$ .

[3 markah/ marks]

- (b) Rajah 3 menunjukkan graf garis lurus yang diperoleh dengan memplot  $(y - x)$  melawan  $x^2$ .

Diagram 3 shows the straight-line graph obtained by plotting  $(y - x)$  against  $x^2$ .



Rajah 3  
Diagram 3

Ungkapkan  $y$  dalam sebutan  $x$ .

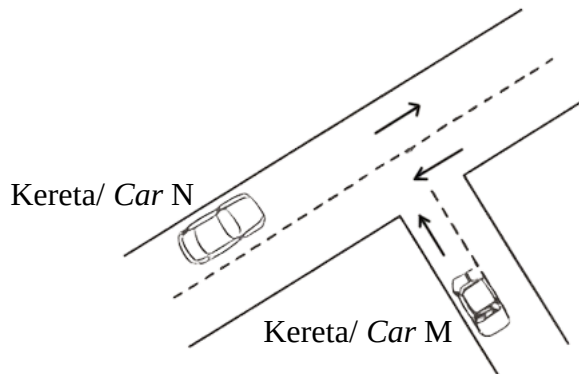
Express  $y$  in terms of  $x$ .

[3 markah/ marks]

Jawapan / Answer :

- 11 Rajah 4 menunjukkan satu persimpangan jalan raya tanpa lampu isyarat. Jalan raya yang dilalui oleh kereta N dan kereta M masing-masing diwakili oleh persamaan  $y = 2x + 6$  dan  $y = -\frac{x}{2} + 10$ .

Diagram 4 shows a T-junction without traffic lights. The roads travelled by car N and car M are represented by the equations  $y = 2x + 6$  dan  $y = -\frac{x}{2} + 10$ .



Rajah 4  
Diagram 4

Kereta N bergerak dengan kelajuan  $60 \text{ kmj}^{-1}$  manakala kereta M bergerak dengan kelajuan  $30 \text{ kmj}^{-1}$  pada masa yang sama dari satu persimpangan. Jika kereta M tidak berhenti dan terus membelok kanan dan ketika tiba di persimpangan tersebut, cari

Car N moves at a speed of  $60 \text{ kmh}^{-1}$  while car M moves at a speed of  $30 \text{ kmh}^{-1}$  at the same time from a junction. If car M does not stop and continues to turn right when it arrives at the junction, find

- koordinat titik berlakunya perlanggaran di antara kereta N dan kereta M,  
the coordinate of the collision points between car N and car M,  
[2 markah/ marks]
- jarak di antara kereta N dengan titik perlanggaran jika koordinat kereta M ialah  $(10,0)$ .  
the distance between car N and the collision point if the coordinate of the car M is  $(10,0)$ .

[4 markah/ marks]

Jawapan / *Answer* :



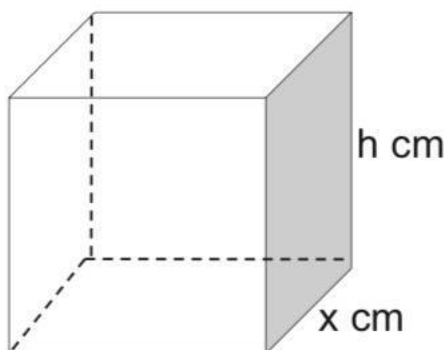
- 12 (a) Diberi  $h = 3x - 2$  dan  $k = x^2 - 1$ . Cari nilai  $\frac{dk}{dh}$  apabila  $x = 2$ .

*Given that  $h = 3x - 2$  and  $k = x^2 - 1$ . Find the value of  $\frac{dk}{dh}$  when  $x = 2$ .*

[3 markah/ marks]

- (b) Rajah 5 menunjukkan sebuah kotak tertutup dengan tapak segi empat sama yang mempunyai jumlah luas permukaan  $216 \text{ cm}^2$ .

*Diagram 5 shows a closed box with a square base which has a total surface area of  $216 \text{ cm}^2$*



Rajah 5  
Diagram 5

Cari nilai  $x$  apabila isipadunya ialah maksimum.

*Find the value of  $x$  when its volume is maximum.*

[3 markah/ marks]

Jawapan / Answer :

Jawapan / *Answer* :

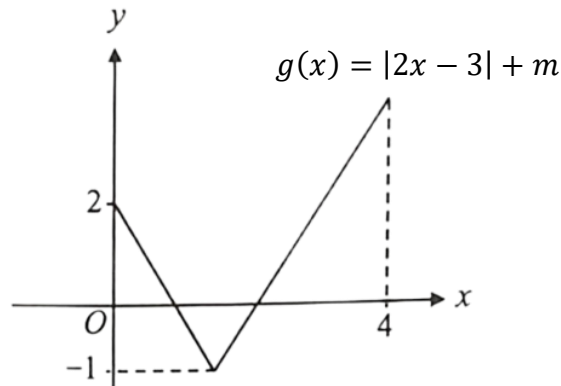
**Bahagian B**

[16 markah]

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

- 13 Rajah 6 menunjukkan graf fungsi mutlak bagi domain  $0 \leq x \leq 4$ .

*Diagram 6 shows the graph of absolute function for the domain  $0 \leq x \leq 4$ .*



Rajah 6  
Diagram 6

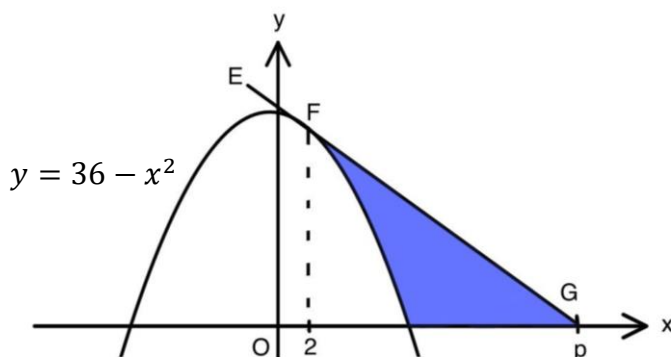
- (a) Nyatakan nilai  $m$ ,  
*the value of  $m$ ,* [1 markah/ mark]
- (b) Cari pintasan- $x$  bagi graf tersebut.  
*Find the  $x$ -intercept of the graph.* [3 markah/ marks]
- (c) Cari domain bagi  $g(x) \leq 1$ .  
*Find the domain of  $g(x) \leq 1$ .* [2 markah/ marks]
- (d) Cari nilai  $x$  yang dipetakan kepada diri sendiri dalam domain yang diberi.  
*Find the value of  $x$  that is mapped onto itself in the given domain.* [2 markah/ marks]

Jawapan / Answer :

Jawapan / *Answer* :

- 14 Rajah 7 menunjukkan lengkung  $y = 36 - x^2$  dan garis lurus  $EFG$  ialah tangen kepada lengkung itu pada titik  $F$ .

*Diagram 7 shows the curve  $y = 36 - x^2$  and the straight line  $EFG$  is tangent to the curve at point  $F$ .*



Rajah 7  
Diagram 7

- (a) Cari/ Find
- (i) persamaan garis lurus  $EFG$ ,  
the equation of straight line  $EFG$ ,
  - (ii) nilai  $p$ .  
the value of  $p$ .

[4 markah/ marks]

- (b) Hitung luas rantau berlorek.  
Calculate the area of shaded region.

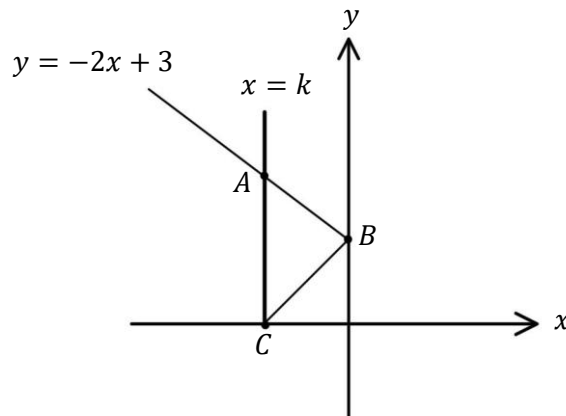
[4 markah/ marks]

Jawapan / Answer :

Jawapan / *Answer* :

- 15 Rajah 8 menunjukkan dua garis lurus pada suatu satah Cartes. Garis lurus  $AB$  dan  $BC$  berserenjang antara satu sama lain.

*Diagram 8 shows two straight lines on Cartesian plane. The straight lines  $AB$  and  $BC$  are perpendicular to each other.*



Rajah 8  
Diagram 8

Diberi bahawa koordinat C ialah  $(k, 0)$ , cari

*Given that coordinate of C is  $(k, 0)$ , find*

- nilai  $k$ ,  
*the value of  $k$ ,* [2 markah/ marks]
- koordinat A,  
*the coordinate of A,* [1 markah/ mark]
- luas segi tiga  $ABC$ ,  
*the area of triangle  $ABC$ ,* [2 markah/ marks]
- persamaan lokus bagi S jika titik S bergerak dengan keadaan jaraknya dari titik B sentiasa sama dengan jarak antara titik B dan titik C.  
*the equation of the locus S if the point S moves such that its distance from point B is always the same as the distance between point B and point C.* [3 markah/ 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       | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 1             | 2 | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|---|----|----|----|----|----|----|----|
|     |         |         |         |         |         |         |         |         |         |         | Minus / Tolak |   |    |    |    |    |    |    |    |
| 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  |
|     |         |         |         | 0.00990 | 0.00964 | 0.00939 | 0.00914 |         |         |         | 3             | 5 | 8  | 10 | 13 | 15 | 18 | 20 | 23 |
|     |         |         |         |         |         |         |         | 0.00889 | 0.00866 | 0.00842 | 2             | 5 | 7  | 9  | 12 | 14 | 16 | 16 | 21 |
| 2.4 | 0.00820 | 0.00798 | 0.00776 | 0.00755 | 0.00734 |         |         |         |         |         | 2             | 4 | 6  | 8  | 11 | 13 | 15 | 17 | 19 |
|     |         |         |         |         |         | 0.00714 | 0.00695 | 0.00676 | 0.00657 | 0.00639 | 2             | 4 | 6  | 7  | 9  | 11 | 13 | 15 | 17 |
| 2.5 | 0.00621 | 0.00604 | 0.00587 | 0.00570 | 0.00554 | 0.00539 | 0.00523 | 0.00508 | 0.00494 | 0.00480 | 2             | 3 | 5  | 6  | 8  | 9  | 11 | 12 | 14 |
| 2.6 | 0.00466 | 0.00453 | 0.00440 | 0.00427 | 0.00415 | 0.00402 | 0.00391 | 0.00379 | 0.00368 | 0.00357 | 1             | 2 | 3  | 5  | 6  | 7  | 9  | 9  | 10 |
| 2.7 | 0.00347 | 0.00336 | 0.00326 | 0.00317 | 0.00307 | 0.00298 | 0.00289 | 0.00280 | 0.00272 | 0.00264 | 1             | 2 | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 2.8 | 0.00256 | 0.00248 | 0.00240 | 0.00233 | 0.00226 | 0.00219 | 0.00212 | 0.00205 | 0.00199 | 0.00193 | 1             | 1 | 2  | 3  | 4  | 4  | 5  | 6  | 6  |
| 2.9 | 0.00187 | 0.00181 | 0.00175 | 0.00169 | 0.00164 | 0.00159 | 0.00154 | 0.00149 | 0.00144 | 0.00139 | 0             | 1 | 1  | 2  | 2  | 3  | 3  | 4  | 4  |
| 3.0 | 0.00135 | 0.00131 | 0.00126 | 0.00122 | 0.00118 | 0.00114 | 0.00111 | 0.00107 | 0.00104 | 0.00100 | 0             | 1 | 1  | 2  | 2  | 2  | 3  | 3  | 4  |

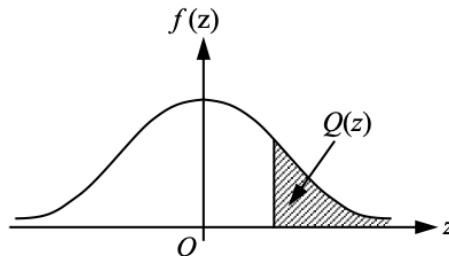
Bagi  $z$  negatif guna hubungan :

For negative  $z$  use relation :

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

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

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



Contoh / Example :

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

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

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

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