

Nama : ..... Kelas : .....



قَسَمْتُ دَعْوَةَ قَوْمٍ إِذَا مَجْلِسٌ قَعَتُوا  
مَعَهُمْ كَرَاهِيًا سَكُوتًا مَنَعُوا كَأَمْ عَرَبٍ بَنِيَانٍ  
يَا سَنَ إِسْلَامَ كَلْتَن



## PEPERIKSAAN PERCUBAAN SPM

## TINGKATAN 5

TAHUN 2024 M / 1446 H

3471/1

Matematik Tambahan

Kertas 1

September 2024

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 mengandungi **dua** bahagian: **Bahagian A** dan **Bahagian B**.
3. Jawapan hendaklah ditulis pada ruang jawapan yang disediakan di dalam kertas peperiksaan ini.
4. Kertas peperiksaan ini adalah dalam dwibahasa.
5. Jawapan boleh ditulis dalam Bahasa Melayu atau Bahasa Inggeris.
6. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
7. Kerja mengira **mesti** ditunjukkan.
8. **Kertas peperiksaan** hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.

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

Kertas peperiksaan ini mengandungi 27 halaman bercetak dan 1 halaman tidak bercetak

# RUMUS FORMULAE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$17. \quad \text{Luas di bawah lengkung} \\ \text{Area under a curve}$$

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

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

$$18. \quad \text{Isipadu kisaran} \\ \text{Volume of revolution}$$

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

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

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

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

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

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

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

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

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

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

$$27. \quad \text{Panjang lengkok, } s = j\theta \\ \text{Arc length, } s = r\theta$$

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

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

$$29. \begin{aligned} \sin^2 A + \cos^2 A &= 1 \\ \sin^2 A + \cos^2 A &= 1 \end{aligned}$$

$$30. \begin{aligned} \sec^2 A &= 1 + \tan^2 A \\ \sec^2 A &= 1 + \tan^2 A \end{aligned}$$

$$31. \begin{aligned} \operatorname{cosec}^2 A &= 1 + \cot^2 A \\ \operatorname{cosec}^2 A &= 1 + \cot^2 A \end{aligned}$$

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

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

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

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

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

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

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

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

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

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

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

$$42. \begin{aligned} \text{Luas segi tiga / Area of triangle} \\ &= \frac{1}{2} |(x_1y_2 + x_2y_3 + x_3y_1) - (x_2y_1 + x_3y_2 + x_1y_3)| \end{aligned}$$

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

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

**Bahagian A**

[64 markah]

*Jawab semua soalan*

1. (a) Bentukkan persamaan kuadratik jika punca – puncanya ialah  $h$  dan  $\frac{1}{h^2}$ . [3 markah]

*Form a quadratic equation if the roots are  $h$  dan  $\frac{1}{h^2}$ . [ 3 marks]*

- (b) Diberi persamaan kuadratik  $(k - 2)p^2 - p + 3 = 0$  tidak mempunyai punca.

Cari julat nilai  $k$ . [2 markah]

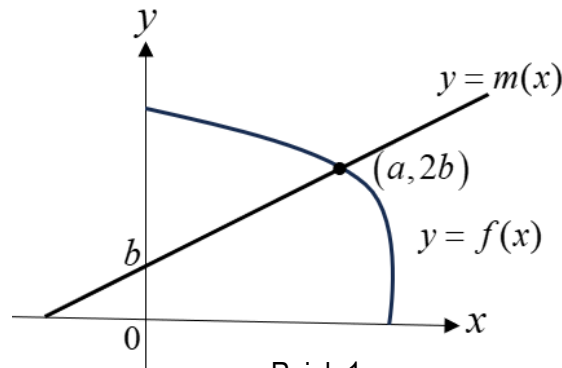
*Given a quadratic  $(k - 2)p^2 - p + 3 = 0$  equation has no roots.*

*Find the ranges of  $k$ . [ 2 marks]*

Jawapan /Answer:

2. (a) Rajah 1 menunjukkan graf bagi suatu lengkung  $y = f(x)$  dan garis lurus  $y = m(x)$

Diagram 1 shows a graph for a curve  $y = f(x)$  and the straight line  $y = m(x)$ .



Rajah 1  
Diagram 1

Pada Rajah 1, lorekkan rantau yang diwakili oleh  $\int_0^a f(x)dx - \int_0^a m(x)dx$ . [1 markah]

On Diagram 1, shade the region represented by  $\int_0^a f(x)dx - \int_0^a m(x)dx$ . [1 mark]

- (b) Diberi  $\int_1^m \frac{1}{2} g(x)dx = n$  dan  $\int_1^m [g(x) - x]dx = \frac{37}{2}$  dengan keadaan  $m > 0$ .

Ungkapkan  $m$  dalam sebutan  $n$ . [3 markah]

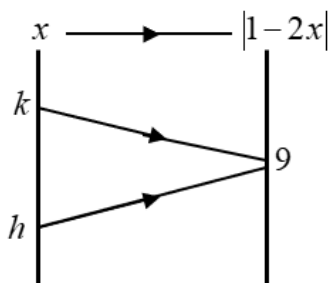
Given  $\int_1^m \frac{1}{2} g(x)dx = n$  and  $\int_1^m [g(x) - x]dx = \frac{37}{2}$  such that  $m > 0$ .

Express  $m$  in terms of  $n$ . [3 marks]

Jawapan /Answer:

3. (a) Rajah 2 menunjukkan fungsi  $f : x \rightarrow |1 - 2x|$ .

Diagram 2 shows the function  $f : x \rightarrow |1 - 2x|$ .



Rajah 2  
Diagram 2

Cari nilai  $h$  dan nilai  $k$ , dengan keadaan  $h > k$ .

[3 markah]

Find the value of  $h$  and  $k$ , such that  $h > k$

[3 marks]

- (b) Diberi  $g(x) = mx + 1$ , dengan keadaan  $m$  ialah pemalar. Jika  $g^{-1}(p-1) = 8$ ,  
ungkapkan  $m$  dalam sebutan  $p$ .

[3 markah]

Given  $g(x) = mx + 1$ , where  $m$  is a constant. If  $g^{-1}(p-1) = 8$ ,  
express  $m$  in terms of  $p$ .

[3 marks]

Jawapan /Answer:

4. Dalam satu kajian yang dikendalikan oleh sebuah sekolah, didapati  $w\%$  guru memiliki sebuah komputer tablet. Jadual 1 menunjukkan sebahagian taburan binomial  $X$  apabila satu sampel empat orang guru dipilih secara rawak.  $X$  merupakan pemboleh ubah rawak binomial yang mewakili guru yang memiliki komputer tablet.

*In a survey conducted by a school, it is found  $w\%$  of the teacher own a tablet computer. Table 1 shows part of the binomial distribution of  $X$  when a sample of four teachers is randomly selected.  $X$  is a binomial random variable representing the teachers who own a tablet computer.*

|            |        |        |
|------------|--------|--------|
| $X$        | 0      | 1      |
| $P(X = x)$ | 0.0081 | 0.0756 |

Jadual 1  
Table 1

Cari

Find

- (a) nilai  $w$   
the value of  $w$

- (b)  $P(X \geq 2)$

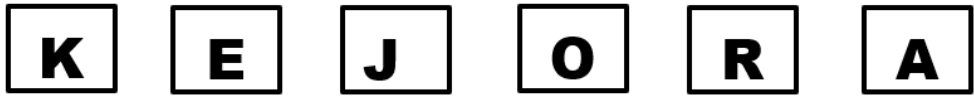
[4 markah]

[4 marks]

Jawapan /Answer:

5. (a) Rajah 3 menunjukkan enam keping kad huruf.

*Diagram 3 shows six letter cards*



Rajah 3  
Diagram 3

Cari bilangan cara yang berlainan untuk menyusun semua huruf dalam satu baris tanpa ulangan jika

*Find the value of different ways to arrange all the letters in a row without repetition if*

- (i) tiada syarat dikenakan

*there are no conditions*

- (ii) huruf vokal dan konsonan berselang seli, selepas dua kad baru berlabel E dan K dimasukkan ke dalam set kad tersebut

*the vowels and the consonants are alternate, selepas two new cards labeled E and K are inserted into the set of the cards.*

[3 markah]

[3 marks]

- (b) Dalam satu ujian Matematik Tambahan mengandungi tujuh soalan pada Bahagian A dan lima soalan pada Bahagian B. Aqeeb perlu menjawab 10 soalan dengan syarat sekurang – kurangnya tiga soalan daripada Bahagian B. Cari bilangan cara Aqeeb dapat menjawab 10 soalan ujian tersebut. [3 markah]

*In an Additional Mathematics test contains seven questions in Section A and five questions in Section B. Aqeeb need to answer 10 questions, of which at least three questions are from Section B. Find the number of ways Aqeeb can answer the 10 test questions.* [3 marks]

Jawapan /Answer:

6. (a) Permudahkan  
*Simplify*

$$3^{-n} (15^n - 27^n)$$

[2 markah]

[2 marks]

- (b) Ungkapkan  $h$  dalam sebutan  $a$  dan  $b$  jika penyelesaian bagi  $\sqrt{4x} - \sqrt{x} = \frac{3}{\sqrt{a} - \sqrt{b}}$ ,

dengan keadaan  $a$  dan  $b$  adalah pemalar bagi  $x = h(\sqrt{a} + \sqrt{b})^2$ . [2 markah]

*Express  $h$  in terms of  $a$  and of  $b$  if the solution to an equation*

$$\sqrt{4x} - \sqrt{x} = \frac{3}{\sqrt{a} - \sqrt{b}}, \text{ such that } a \text{ and } b \text{ are constants is } x = h(\sqrt{a} + \sqrt{b})^2.$$

[2 marks]

- (c) Diberi bahawa  $q = \ln p + 1$  dengan keadaan  $p$  suatu nombor nisbah dan merupakan penyelesaian bagi persamaan  $5e^{q-3} = e^{-2}$ , cari nilai  $p$ . [3 markah]

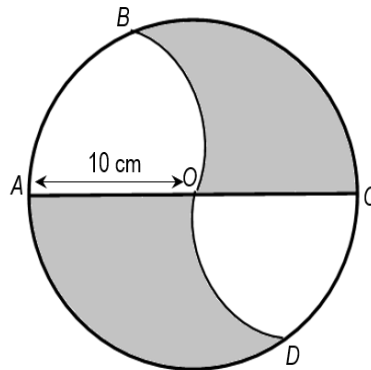
*Given that  $q = \ln p + 1$ , such that  $p$  is a rational number and is the solution to an equation  $5e^{q-3} = e^{-2}$ , find the value of  $p$ .* [3 marks]

Jawapan /Answer:



7. Rajah 4 menunjukkan sebuah bulatan  $ABCD$  berpusat  $O$  dan berjari  $10\text{ cm}$ .  $AOB$  dan  $COD$  ialah sektor yang sama saiz dalam bulatan itu dan masing – masing berpusat di  $A$  dan  $C$ .  
*Diagram 4 shows a circle  $ABCD$  with centre  $O$  and radius  $10\text{ cm}$ .  $AOB$  and  $COD$  are sectors of the same size in the circle and are centred at  $A$  and  $C$  respectively.*

[ Guna /Use  $\pi = 3.142$  ]



Rajah 4  
Diagram 4

Hitung

*Calculate*

- (a)  $\angle COD$ , dalam  $\pi$  radian, [1 markah]  
 $\angle COD$ , in  $\pi$  radians, [1 mark]  
(b) luas, dalam  $\text{cm}^2$ , kawasan berlorek. [4 markah]  
the area, in  $\text{cm}^2$ , of the shaded region. [4 marks]

Jawapan /Answer:



8. Selesaikan persamaan serentak berikut :

*Solve the following simultaneous equations :*

$$2x - 3y = x^2 - 4y^2 - y + 2 = 5.$$

Berikan jawapan anda betul kepada tiga titik perpuluhan.

*Give your answers correct to three decimal places.*

[5 markah]

[5 marks]

Jawapan /Answer:

9. (a) Pembolehubah  $x$  dan  $y$  dihubungkan oleh persamaan  $y = rx^2 + n$  dengan keadaan  $r$  dan  $n$  ialah pemalar. Graf garis lurus diperoleh dengan memplot  $\frac{y}{x^2}$  melawan  $\frac{1}{x^2}$  dengan kecerunan  $3p$  dan pintasan  $-\frac{y}{x^2}$  ialah  $(p+3)$ .

Ungkapkan  $n$  dalam sebutan  $r$ .

[3 markah]

The variables  $x$  and  $y$  are related by the equation  $y = rx^2 + n$  where  $r$  and  $n$  constants.

A straight line graphs is obtained by plotting  $\frac{y}{x^2}$  against  $\frac{1}{x^2}$  with gradient of  $3p$  and

$\frac{y}{x^2}$  – intercept at  $(p+3)$ . Express  $n$  in terms of  $r$ .

[3 marks]

- (b) Seterusnya, jika  $(2, q)$  terletak pada garis lurus yang diplot di (a), ungkapkan  $q$  dalam sebutan  $r$ .

[2 markah]

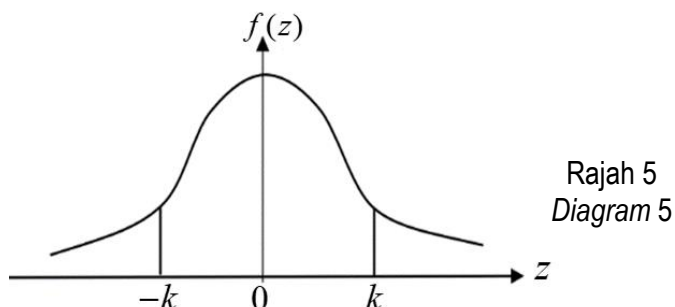
Hence, if  $(2, q)$  lies on the straight line plotted in (a), express  $q$  in terms of  $r$ .

[2 marks]

Jawapan /Answer:

10. Rajah 5 menunjukkan graf taburan normal piawai.

Diagram 5 shows a standard normal distribution graph.



Diberi bahawa  $P(z \geq k) = 0.1469$ .

It is given that  $P(z \geq k) = 0.1469$ .

- (a) Cari nilai  $P(|z| \leq k)$ . [2 markah]

Find the value of  $P(|z| \leq k)$ . [2 marks]

- (b) Pembolehubah rawak selanjar  $X$  mempunyai taburan normal dengan min  $\mu$  dan varians 16. Diberi skor- $z$  ialah  $k$  apabila  $X = 73.2$ . Cari nilai  $\mu$ . [2 markah]

The continuous random variable  $X$  has a normal distribution with a mean of  $\mu$  and a variance of 16. It is given that  $z$ -score is  $k$  when  $X = 73.2$ . find the value of  $\mu$ . [2 marks]

Jawapan /Answer:

11. Diberi bahawa  $\vec{OA} = \vec{i} + 3\vec{j}$ ,  $\vec{OB} = 2\vec{i} + 5\vec{j}$  dan  $\vec{OC} = m\vec{i} + 11\vec{j}$ , dengan keadaan  $m$  ialah pemalar.

*It is given that  $\vec{OA} = \vec{i} + 3\vec{j}$ ,  $\vec{OB} = 2\vec{i} + 5\vec{j}$  and  $\vec{OC} = m\vec{i} + 11\vec{j}$  where  $m$  is a constant.*

- (a) Cari nilai  $m$  jika A,B dan C adalah segaris. [3 markah]  
*Find the value of  $m$  if A, B and C are collinear.* [3 marks]
- (b) Seterusnya, cari vektor unit dalam arah  $\vec{BC}$ . [2 markah]  
*Hence, find the unit vektor in direction of  $\vec{BC}$ .* [2 marks]

Jawapan /Answer:

12. (a) Buktikan  $\frac{\cos^2 x}{1 - \sin x} = 1 + \sin x$ . [2 markah]
- Prove that  $\frac{\cos^2 x}{1 - \sin x} = 1 + \sin x$ . [2 marks]

- (b) Diberi  $\cos x = -t$ , dengan keadaan  $x$  ialah sudut refleksi. Cari dalam sebutan  $t$   
Given  $\cos x = -t$ , such that  $x$  is a reflex angle. Find in terms of  $t$

(i)  $\csc x$

$\operatorname{cosec} x$

(ii)  $5 \sec(x - 180^\circ)$

$5 \sec(x - 180^\circ)$

[3 markah]

[3 marks]

- (c) Selesaikan persamaan  $5\cos 2x + 9\sin x = 7$  untuk  $0^\circ \leq x \leq 360^\circ$ . [3 markah]
- Solve the equation  $5\cos 2x + 9\sin x = 7$  for  $0^\circ \leq x \leq 360^\circ$ . [3 marks]

Jawapan / Answer:



**Bahagian B**

[16 markah]

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

13. (a)  $T_1, T_2$  dan  $T_3$  adalah tiga sebutan berturutan suatu jangjang aritmetik. Diberi bahawa  $T_1 = 7$  dan  $T_{n+1} = T_n + 4$  bagi  $n \geq 1$ . Cari sebutan ke-17. [3 markah]
- $T_1, T_2$  and  $T_3$  are three consecutive terms of an arithmetic progression. It is given that  $T_1 = 7$  and  $T_{n+1} = T_n + 4$  for  $n \geq 1$ . Cari sebutan ke -17. [3 marks]*
- (b) Amira membuat pinjaman bank untuk membeli sebuah kereta. Dia membuat bayaran RM 1405.00 pada ansuran ketiga dan RM 1700.00 pada ansuran ketujuh kepada pihak bank. Bayaran ansuran ini menghasilkan jangjang geometri. Cari bayaran pertama dan seterusnya bayaran yang ke -15 yang dibuat oleh Amira. [5 markah]
- Amira took out a bank loan to buy a car. He paid RM 1405.00 in the third installment and RM 1700.00 in the seventh installment to the bank. These installment payments result in a geometric progression. Find the first payment and hence, the 15<sup>th</sup> payment made by Amira. [3 marks]*

Jawapan /Answer:



14. (a) Cari nilai bagi

Find the value of  $\lim_{x \rightarrow 3} \frac{x-3}{3-\sqrt{12-x}}$

[3 markah]

[3 marks]

- (b) Tangen kepada lengkung  $y = -x^3 - qx^2 + 4x + 3$  pada  $x = -1$  adalah selari dengan garis lurus  $y = -3x$ .

The tangent to the curve  $y = -x^3 - qx^2 + 4x + 3$  at  $x = -1$  is parallel to the straight line  $y = -3x$ .

Cari /Find

- (i) nilai  $q$ ,  
value of  $q$ ,
- (ii) persamaan tangen kepada lengkung pada  $x = -1$   
the equation of tangent to the curve at  $x = -1$ .

[5 markah]

[5 marks]

Jawapan /Answer:

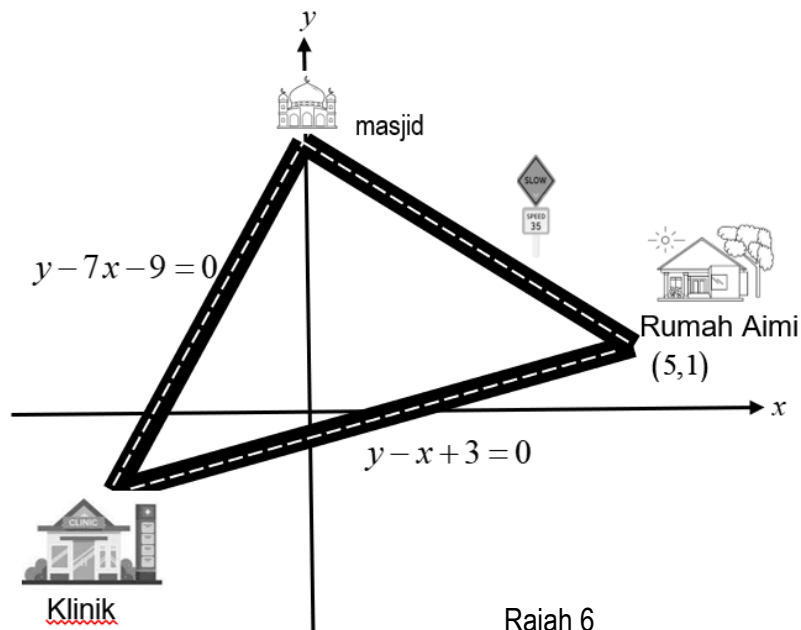


- 15.. Penyelesaian secara lukisan berskala tidak diterima.

*Solution by scale drawing is not accepted.*

Rajah 6 menunjukkan sebuah lokasi bagi rumah Aimi, masjid dan klinik yang dihubungkan oleh tiga jalan di atas satah cartes. Diberi persamaan garis lurus bagi jalan yang menghubungkan klinik ke rumah Aimi ialah  $y - x + 3 = 0$  dan persamaan garis lurus jalan yang menghubungkan masjid ke klinik ialah  $y - 7x - 9 = 0$ .

*Diagram 6 shows a location for Aimi's house, mosque and clinic connected by three roads on the Cartesian plane. Given the equation of the straight line for the road that connected the clinic and Aimi's house is  $y - x + 3 = 0$  and equation of the straight line for the road that connected the mosque to the clinic is  $y - 7x - 9 = 0$*



Rajah 6  
Diagram 6

- (a) Cari koordinat bagi klinik.  
*Find the coordinate of clinic.*

[2 markah]

[2 marks]

- (b) Sebuah papan tanda diletakkan pada koordinat  $\left(2, \frac{29}{5}\right)$  antara jalan yang menghubungkan masjid dan rumah Aimi. Cari nisbah jarak antara masjid dan rumah Aimi ke papan tanda. [2 markah]

*A signboard is placed at the coordinates  $\left(2, \frac{29}{5}\right)$  on the road that connected between mosque and Aimi's house. Find the ratio of the distance between the mosque and Aimi's house to the signboard.* [2 marks]

- (c) Sebuah Syarikat telekomunikasi bercadang meletakkan sebuah Menara telekomunikasi antara masjid , rumah Aimi dan klinik. Menara itu dilengkapi dengan pagar bagi mengelakkan sebarang pencerobohan. Diberi koordinat Menara telekomunikasi ialah  $(-1, 4)$  .

*A telecommunications company plans to place a telecommunications tower between the mosque, Aimi's house and the clinic. The tower is equipped with a fence to prevent any trespassing. Given the coordinates of the telecommunication tower is  $(-1, 4)$  .*

- (i) Cari persamaan lokus pagar itu yang berpusatkan Menara telekomunikasi dan berdiameter 6 unit.

*Find the equation of the locus of the fence is centered on the telecommunications tower and its diameter is 6 units.*

- (ii) Seterusnya, tentukan sama ada lokus itu memintas paksi - x atau tidak.

*Hence, determine whether or not the locus intercepts the x – axis.*

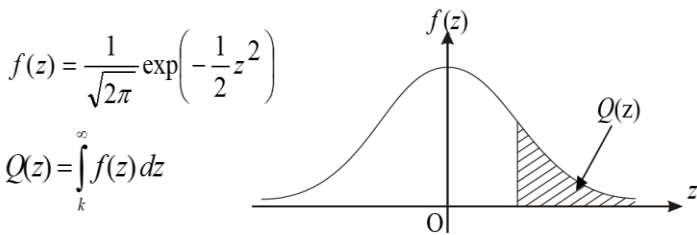
[4 markah]

[4 marks]

Jawapan /Answer:

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 |   |    |    |    |    |    |    |    |
|-----|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---------------|---|----|----|----|----|----|----|----|
| 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>2</sup> 990 | 0.0 <sup>2</sup> 964 | 0.0 <sup>2</sup> 939 | 0.0 <sup>2</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  |



Example / Contoh:  
If  $X \sim N(0, 1)$ , then  $P(X > k) = Q(k)$   
Jika  $X \sim N(0, 1)$ , maka  $P(X > k) = Q(k)$