



**MAJLIS PENGETUA SEKOLAH MALAYSIA
NEGERI KEDAH DARUL AMAN**

MODUL PENINGKATAN PRESTASI TINGKATAN LIMA 2014

**MATEMATIK TAMBAHAN
KERTAS 2
MODUL 2**

$2\frac{1}{2}$ jam

Dua jam tiga puluh minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *This question paper consists of three sections : **Section A**, **Section B** and **Section C**.*
 2. *Answer **all** questions in **Section A**, **four** questions from **Section B** and **two** questions from **Section C**.*
 3. *Give only **one** answer/solution to each question.*
 4. *Show your working. It may help you to get your marks.*
 5. *The diagrams provided are not drawn according to scale unless stated.*
 6. *The marks allocated for each question and sub - part of a question are shown in brackets.*
 7. *You may use a **non-programmable** scientific calculator.*
 8. *A list of formulae is provided in page 2 and 3.*
-

Kertas soalan ini mengandungi **18** halaman bercetak dan **2** halaman kosong.

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

ALGEBRA

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

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

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

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

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

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

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

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

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

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

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

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

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

CALCULUS

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

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

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

$$4. \quad \begin{aligned} &\text{Area under a curve} \\ &= \int_a^b y \, dx \quad \text{or} \\ &= \int_a^b x \, dy \end{aligned}$$

$$5. \quad \begin{aligned} &\text{Volume of revolution} \\ &= \int_a^b \pi y^2 \, dx \quad \text{or} \\ &= \int_a^b \pi x^2 \, dy \end{aligned}$$

GEOMETRY

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

2. Mid point

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

3. Division of line segment by a point

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

4. Area of triangle

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

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

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

STATISTICS

$$1. \quad \bar{x} = \frac{\sum x}{N}$$

$$2. \quad \bar{x} = \frac{\sum fx}{\sum f}$$

$$3. \quad \sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{N}} = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2}$$

$$4. \quad \sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}} = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$$

$$5. \quad m = L + \left(\frac{\frac{1}{2}N - F}{f_m} \right) C$$

$$6. \quad I = \frac{Q_1}{Q_0} \times 100$$

$$7. \quad \bar{I} = \frac{\sum W_i I_i}{\sum W_i}$$

$$8. \quad {}^n P_r = \frac{n!}{(n-r)!}$$

$$9. \quad {}^n C_r = \frac{n!}{(n-r)!r!}$$

$$10. \quad P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$11. \quad P(X = r) = {}^n C_r p^r q^{n-r}, p + q = 1$$

$$12. \quad \text{Mean}, \mu = np$$

$$13. \quad \sigma = \sqrt{npq}$$

$$14. \quad Z = \frac{X - \mu}{\sigma}$$

TRIGONOMETRY

$$1. \quad \text{Arc length, } s = r\theta$$

$$2. \quad \text{Area of sector, } A = \frac{1}{2}r^2\theta$$

$$3. \quad \sin^2 A + \cos^2 A = 1$$

$$4. \quad \sec^2 A = 1 + \tan^2 A$$

$$5. \quad \operatorname{cosec}^2 A = 1 + \cot^2 A$$

$$6. \quad \sin 2A = 2 \sin A \cos A$$

$$\begin{aligned} 7. \quad \cos 2A &= \cos^2 A - \sin^2 A \\ &= 2 \cos^2 A - 1 \\ &= 1 - 2 \sin^2 A \end{aligned}$$

$$8. \quad \sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$9. \quad \cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$

$$10. \quad \tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

$$11. \quad \tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

$$12. \quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$13. \quad a^2 = b^2 + c^2 - 2bc \cos A$$

$$14. \quad \text{Area of triangle} = \frac{1}{2}ab \sin C$$

Section A
Bahagian A
 [40 marks]
 [40 markah]

Answer **all** questions.
 Jawab **semua** soalan.

- 1 Solve the simultaneous equations $x - 2y = 1$ and $x^2 + (2y + 1)^2 = 50$. [5 marks]

Selesaikan persamaan serentak $x - 2y = 1$ dan $x^2 + (2y + 1)^2 = 50$. [5 markah]

2

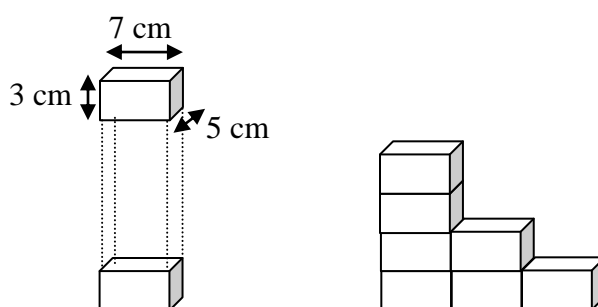


Diagram 2 / Rajah 2

Diagram 2 shows part of a structure made up of rectangular blocks. The first column has one block. For each of the other columns, the number of blocks is doubled the previous column.

- (a) Find the number of blocks in the 8th columns, [2 marks]
 (b) Calculate
 (i) the total volume of the blocks if there are 10 columns of blocks.
 (ii) the total cost of the 10 columns of blocks if each block cost RM0.80. [5 marks]

Rajah 2 menunjukkan susunan suatu struktur yang terdiri daripada blok yang berbentuk segi empat tepat. Lajur pertama mempunyai satu blok. Bagi setiap lajur berikutnya, bilangan blok adalah dua kali ganda daripada lajur sebelumnya.

- (a) Carikan bilangan blok bagi lajur ke 8. [2 markah]
 (b) Hitungkan
 (i) jumlah isipadu blok jika terdapat 10 lajur bagi struktur itu.
 (ii) jumlah kos bagi 10 lajur blok jika setiap blok RM0.80. [5 markah]

- 3 (a) Sketch the graph of $y = \cos 3x$ for $0 \leq x \leq \pi$. [3 marks]
- (b) Hence, using the same axes, sketch a suitable straight line to find the number of solutions for the equation $x - \pi \cos 3x = 0$ for $0 \leq x \leq \pi$.
State the number of solutions. [3 marks]
- (a) Lakar graf bagi $y = \cos 3x$ untuk $0 \leq x \leq \pi$. [3 markah]
- (b) Seterusnya, dengan menggunakan paksi yang sama, lakar satu garis lurus yang sesuai untuk mencari bilangan penyelesaian bagi persamaan $x - \pi \cos 3x = 0$ untuk $0 \leq x \leq \pi$.
Nyatakan bilangan penyelesaian itu. [3 markah]
- 4 (a) Given that a set X has score $x_1, x_2, x_3, \dots, x_{10}$. The mean and standard deviation of set X are 10 and 4 respectively. Find $\sum x$ and $\sum x^2$ for set X . [4 marks]
- (b) Another set Y has score $\frac{x_1+3}{2}, \frac{x_2+3}{2}, \frac{x_3+3}{2}, \dots, \frac{x_{10}+3}{2}$.
Find the mean and variance for set Y . [3 marks]
- (a) Diberi bahawa set X mempunyai skor $x_1, x_2, x_3, \dots, x_{10}$. Min dan sisihan piawai ialah 10 dan 4 masing-masing. Carikan $\sum x$ and $\sum x^2$ bagi set X . [4 markah]
- (b) Satu lagi set Y mempunyai skor $\frac{x_1+3}{2}, \frac{x_2+3}{2}, \frac{x_3+3}{2}, \dots, \frac{x_{10}+3}{2}$.
Carikan min dan varians bagi set Y . [3 markah]

5 (a) Given that $\log_5 K - \log_{125} V = 1$, express V in terms of K . [3 marks]

(b) Given that the function $f : x \rightarrow k + 2mx$, and $f^{-1} : x \rightarrow \frac{1}{8}x + 3$, calculate

(i) the value of k and of m ,

(ii) the value of p if $f^{-1}(p) = \frac{1}{2}$. [5 marks]

(a) Diberi bahawa $\log_5 K - \log_{125} V = 1$, ungkapkan V dalam sebutan K . [3 markah]

(b) Diberi bahawa fungsi $f : x \rightarrow k + 2mx$, dan $f^{-1} : x \rightarrow \frac{1}{8}x + 3$, hitungkan

(i) nilai-nilai bagi k dan m ,

(ii) nilai bagi p jika $f^{-1}(p) = \frac{1}{2}$. [5 markah]

6 (a) Given that $f(x) = \frac{9x^2 - 1}{3x - 1}$, find $f'(x)$. [2 marks]

(b) A curve has a gradient function of $kx^2 + 3x$, the tangent to the curve at the point $(2, 12)$ is parallel to the straight line $2y + 4x = 9$, find

(i) the value of k ,

(ii) the equation of the normal to the curve at point $(2, 12)$. [5 marks]

(a) Diberi bahawa $f(x) = \frac{9x^2 - 1}{3x - 1}$, cari $f'(x)$. [2 markah]

(b) Fungsi kecerunan suatu lengkung ialah $kx^2 + 3x$, tangen pada lengkung di titik $(2, 12)$ adalah selari kepada garis lurus $2y + 4x = 9$, cari

(i) nilai bagi k ,

(ii) persamaan normal pada lengkung di titik $(2, 12)$. [5 markah]

Section B
Bahagian B

[40 marks]

[40 markah]

Answer **four** questions from this section.

Jawab empat soalan daripada bahagian ini.

- 7 Use graph paper to answer this question.

Gunakan kertas graf untuk menjawab soalan ini.

x	1	2	3	4	5	6
y	3.5	22.0	67.5	152.0	287.5	486.0

Table 7/ Jadual 7

Table 7 shows the values of two variables, x and y , obtained from an experiment. Variables x and y are related by the equation $y = kx^3 + \frac{p}{k}x^2$, where k and p are constants.

- (a) Plot $\frac{y}{x^2}$ against x , using a scale of 2 cm to 1 unit on the x -axis and 1 cm to 1 unit on the $\frac{y}{x^2}$ -axis. Hence, draw the line of best fit. [4 marks]

- (b) Use the graph in 7 (a) to find the value of

(i) k

(ii) p

(iii) y when $x = 2.5$. [6 marks]

Jadual 7 menunjukkan nilai-nilai bagi dua pembolehubah, x dan y , yang diperoleh daripada satu eksperimen. Pembolehubah x dan y dihubungkan oleh persamaan $y = kx^3 + \frac{p}{k}x^2$, dengan keadaan k dan p ialah pemalar.

- (a) Plot $\frac{y}{x^2}$ melawan x , dengan menggunakan skala 2 cm kepada 1 unit pada paksi- x dan 1 cm kepada 1 unit pada paksi- $\frac{y}{x^2}$. Seterusnya, lukis garis lurus penyuaiian terbaik. [4 markah]

- (b) Gunakan graf di 7(a) untuk mencari nilai

(i) k ,

(ii) p ,

(iii) y apabila $x = 2.5$. [6 markah]

8

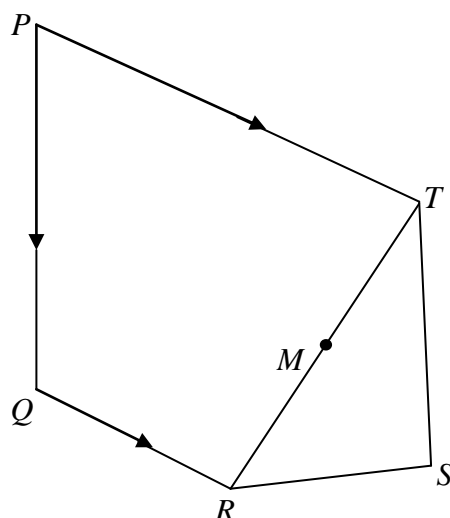


Diagram 8/ Rajah 8

Diagram 8 shows a quadrilateral $PQRT$ and a triangle RST . M is a midpoint of TR .

$\overrightarrow{PQ} = 9\mathbf{x}$, $\overrightarrow{PT} = 8\mathbf{y}$, $2\overrightarrow{PQ} = 3\overrightarrow{TS}$ and $\overrightarrow{PT} = 2\overrightarrow{QR}$.

(a) Express the following vectors in terms of \mathbf{x} and \mathbf{y} .

(i) \overrightarrow{TR}

(ii) \overrightarrow{PS}

(iii) \overrightarrow{MS}

Hence, Show that P , M and S are collinear.

[6 marks]

(b) It is given that $|\mathbf{x}| = \frac{1}{2}$ and $|\mathbf{y}| = \frac{3}{4}$, find $|\overrightarrow{PS}|$.

[4 marks]

Rajah 8 menunjukkan sebuah sisiempat $PQRT$ dan segitiga RST . M ialah titik tengah TR .

$\overrightarrow{PQ} = 9\mathbf{x}$, $\overrightarrow{PT} = 8\mathbf{y}$, $2\overrightarrow{PQ} = 3\overrightarrow{TS}$ dan $\overrightarrow{PT} = 2\overrightarrow{QR}$.

(a) Ungkapkan vektor yang berikut dalam sebutan \mathbf{x} dan \mathbf{y}

(i) \overrightarrow{TR}

(ii) \overrightarrow{SR}

(iii) \overrightarrow{MS}

Seterusnya, tunjukkan bahawa P , M dan S adalah segaris.

[6 markah]

(b) Diberi bahawa $|\mathbf{x}| = \frac{1}{2}$ dan $|\mathbf{y}| = \frac{3}{4}$, cari $|\overrightarrow{PS}|$.

[4 markah]

9

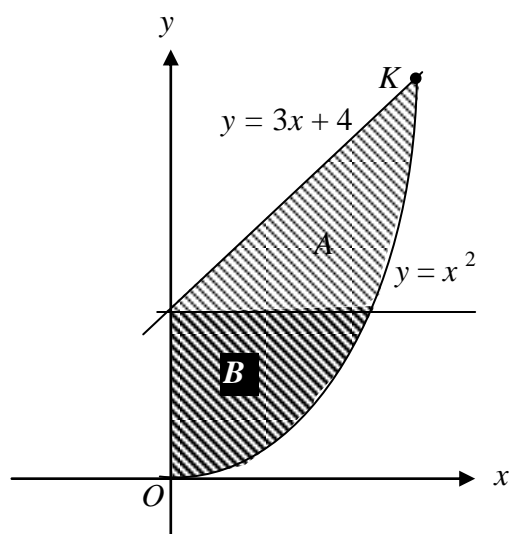


Diagram 9/Rajah 9

Diagram 9 shows the straight line $y = 3x + 4$ intersecting the curve $y = x^2$ at the points K .

Find

- the coordinates of K , [3 marks]
- the area of the shaded region B , [3 marks]
- the volume generated, in terms of π , when the shaded region A is revolved through 360° about the y -axis.

[4 marks]

Rajah 9 menunjukkan garis lurus $y = 3x + 4$ yang menyilang lengkung $y = x^2$ pada titik K .

Cari

- koordinat K , [3 markah]
- luas rantau berlorek B , [3 markah]
- isipadu janaan, dalam sebutan π , apabila rantau berlorek A dikisarkan melalui 360° pada paksi- y .

[4 markah]

10

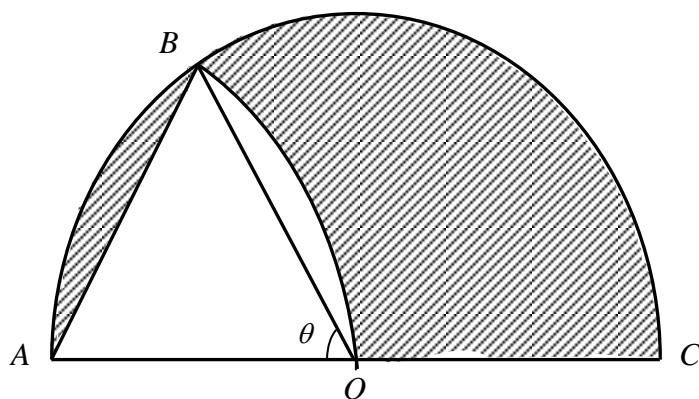


Diagram 10 / Rajah 10

Diagram 10 shows a semicircle ABC with centre O and a sector ABO with centre A . The radius of semicircle ABC and sector ABO is 8 cm.

[Use $\pi = 3.142$]

Calculate

- (a) the value of θ , in radian, [2 marks]
- (b) the perimeter, in cm, of shaded region, [4 marks]
- (c) the area, in cm^2 , of the shaded region. [4 marks]

Rajah 10 menunjukkan sebuah semi bulatan ABC dengan pusat O dan sector ABO dengan pusat A . Jejari bagi semi bulatan ABC dan sektor bulatan ABO ialah 8 cm.

[Guna $\pi = 3.142$]

Hitung

- (a) nilai θ , dalam radian, [2 markah]
- (b) perimeter, dalam cm, kawasan berlorek, [4 markah]
- (c) luas, dalam cm^2 , kawasan berlorek. [4 markah]

- 11 (a) In an examination, 85% of the candidates passed Mathematics. If a sample of 6 candidates is chosen at random, find the probability that

- (i) all the candidates passed Mathematics,
- (ii) at least 2 candidates failed Mathematics.

[5 marks]

- (b) The body mass of 500 students in a school follows a normal distribution with a mean of 52 kg and a standard deviation of 10 kg.

- (i) If a student is chosen at random, find the probability that his body mass is between 40 kg and 60 kg.
- (ii) Calculate the number of students whose body mass are between 40 kg and 60 kg.

[5 marks]

- (a) Dalam suatu peperiksaan, 85 % calon lulus Matematik. Jika 6 calon dipilih secara rawak, cari kebarangkalian bahawa

- (i) kesemua calon itu lulus Matematik,
- (ii) sekurang-kurangnya 2 calon gagal Matematik.

[5 markah]

- (b) Jisim badan 500 pelajar sebuah sekolah adalah mengikut taburan normal dengan min 52 kg dan sisihan piawai 10 kg.

- (i) Jika seorang pelajar dipilih secara rawak, carikan kebarangkalian bahawa jisim badannya berada di antara 40 kg dan 60 kg.
- (ii) Hitung bilangan pelajar yang mempunyai jisim badan di antara 40 kg dan 60 kg.

[5 markah]

Section C
Bahagian C
[20 marks]
[20 markah]

Answer **any two** questions from this section.
*Jawab mana-mana **dua** soalan daripada bahagian ini.*

- 12** A particle moves along a straight line from a fixed point O . Its velocity, $v \text{ ms}^{-1}$, is given by $v = kt - 3t^2$, where k is a constant and t is the time, in seconds, after leaving the point O . The velocity of the particle is maximum when $t = 2.5 \text{ s}$.

[Assume motion to the right is positive.]

Find

- (a) the value of k , [2 marks]
- (b) the value of t when the particle passes O again, [3 marks]
- (c) the time, in seconds, when the particle stops instantaneously, [2 marks]
- (d) the distance travelled, in m, by the particle in the first 7 seconds. [3 marks]

Suatu zarah bergerak di sepanjang suatu garis lurus dari satu titik tetap O . Halajunya, $v \text{ ms}^{-1}$, diberi oleh $v = kt - 3t^2$, dengan keadaan k ialah pemalar dan t ialah masa, dalam saat, selepas meninggalkan titik O . Halaju zarah itu adalah maksimum pada $t = 2.5 \text{ s}$

[Anggapkan gerakan ke arah kanan sebagai positif.]

Cari

- (a) nilai k , [2 markah]
- (b) nilai bagi t apabila zarah itu melalui titik O semula, [3 markah]
- (c) masa, dalam saat, apabila zarah berhenti seketika, [2 markah]
- (d) jarak yang dilalui, dalam m, oleh zarah itu dalam tujuh saat pertama. [3 markah]

13 Diagram 13 shows a quadrilateral $KLMN$.

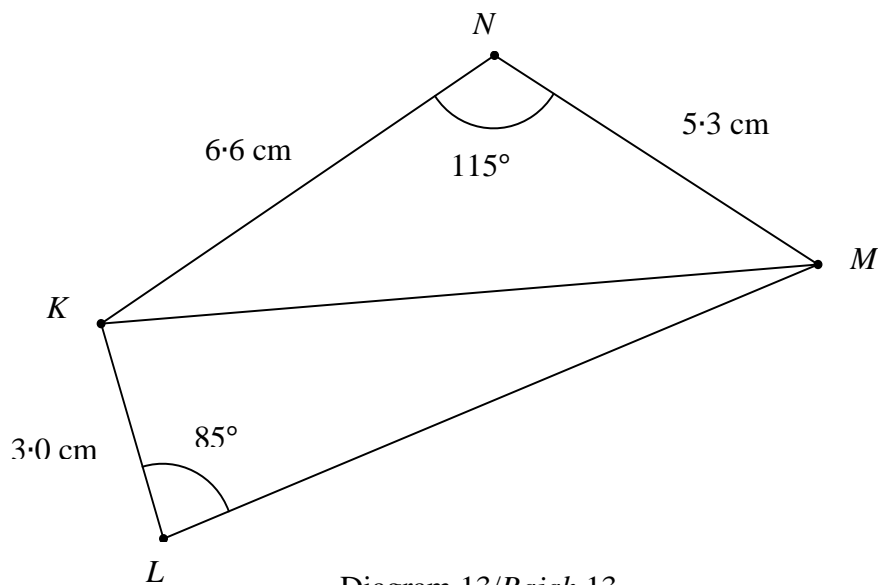


Diagram 13/Rajah 13

Calculate

- (a) the length, in cm, of KM , [2 marks]
- (b) $\angle KMN$, [2 marks]
- (c) $\angle LKM$, [3 marks]
- (d) the area, in cm^2 , of quadrilateral $KLMN$. [3 marks]

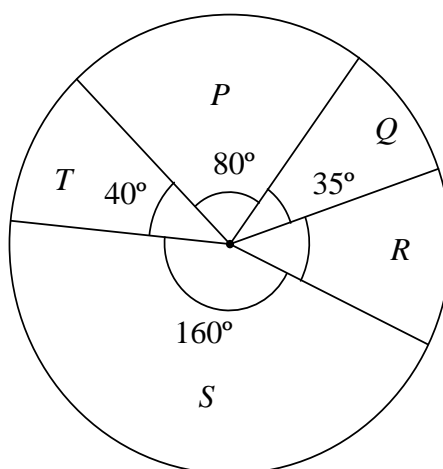
Rajah 13 menunjukkan sisiempat $KLMN$.

Hitungkan

- (a) panjang, dalam cm, KM , [2 markah]
- (b) $\angle KMN$, [2 markah]
- (c) $\angle LKM$, [3 markah]
- (d) luas, dalam cm^2 , bagi sisiempat $KLMN$. [3 markah]

- 14** Table 14 shows the prices and the price indices of five components P , Q , R , S and T needed to produce a certain type of digital camera. Pie chart 14 shows the relative quantity of components needed in producing the camera.

Component <i>Komponen</i>	Price (RM) per unit <i>Harga (RM)</i> <i>per unit</i>		Price index for the year 2012 based on the year 2010 <i>Indeks harga pada tahun</i> <i>2012 berasaskan tahun</i> 2010
	2010	2012	
P	1.10	1.21	110
Q	1.80	x	120
R	3.20	4.00	150
S	2.50	3.05	122
T	2.00	2.80	y

Table 14 / *Jadual 14*Pie chart 14 / *Carta pai 14*

- (a) Find the value of x and y . [4 marks]
- (b) Calculate the composite index for the production cost of the camera in the year 2012 based on the year 2010. [3 marks]
- (c) The price of each component increases by 10% from the year 2012 to the year 2014. Given that the production cost of the camera in year 2010 is RM500, calculate the corresponding cost in year 2014. [3 marks]

Jadual 14 menunjukkan harga dan indeks harga bagi lima komponen P, Q, R, S dan T yang diperlukan untuk menghasilkan sejenis kamera digital. Carta pai 14 menunjukkan kuantiti relatif bagi komponen yang diperlukan dalam penghasilan kamera digital itu.

- (a) Cari nilai x dan y . [4 markah]
- (b) Hitungkan indeks gubahan bagi kos penghasilan kamera digital itu pada tahun 2012 berasaskan tahun 2010. [3 markah]
- (c) Harga setiap komponen meningkat 10% dari tahun 2012 ke tahun 2014. Diberi kos penghasilan kamera digital itu dalam tahun 2010 ialah RM500, hitungkan kosnya yang sepadan pada tahun 2014. [3 markah]

15 Use a graph paper to answer this question.

A factory produces two types of pillow, type *A* and type *B*. In a day, it can produce x pillows of type *A* and y pillows of type *B*. The time taken to produce a pillow of type *A* is 20 minutes and a pillow of type *B* is 30 minutes.

The production of the pillow per day is based on the following constraints.

I. : The time taken to make pillows of type *A* is not more than the time taken to make pillows of type *B*.

II. : The total number of pillows produced is not more than 500.

III. : The number of pillows of type *B* must exceed the number of pillows of type *A* by at most 200.

- (a) Write three inequalities, other than $x \geq 0$, and $y \geq 0$ which satisfy all the above constraints. [3 marks]
- (b) By using the scale of 2 cm to 100 pillows on both axes, construct and shade the region ***R*** which satisfies all the above constraints. [3 marks]
- (c) Use graph from 15(b), to find
- (i) the maximum number of pillows of type *A* if 280 of pillows of type *B* produced.
 - (ii) maximum profit that can be obtained, if the profit of selling pillow *A* is RM20 and pillow *B* is RM12.00. [4 marks]

Gunakan kertas graf untuk menjawab soalan ini.

Sebuah kilang menghasilkan 2 jenis bantal, jenis A dan jenis B. Dalam satu hari, kilang itu boleh menghasilkan x biji bantal jenis A dan y biji bantal jenis B. Masa yang diambil untuk menghasilkan sebiji bantal jenis A ialah 20 minit dan sebiji bantal jenis B ialah 30 minit.

Pengeluaran bantal dalam satu hari adalah berdasarkan kekangan yang berikut:

- I: Masa yang diambil untuk membuat bantal A tidak melebihi masa yang diambil untuk membuat bantal jenis B.
- II: Jumlah bantal yang dihasilkan tidak melebihi 500 biji.
- III: Bilangan bantal jenis B mesti melebihi bilangan bantal jenis A selebih-lebihnya 200 biji.

- (a) Tulis tiga ketaksamaan, selain $x \geq 0$, dan $y \geq 0$, yang memenuhi semua kekangan di atas. [3 markah]
- (b) Menggunakan skala 2 cm kepada 100 biji bantal pada kedua-dua paksi, bina dan lorek rantau **R** yang memenuhi semua kekangan di atas. [3 markah]
- (c) Gunakan graf anda daripada 15(b) untuk mencari
 - (i) bilangan maksimum bantal jenis A jika 280 biji bantal jenis B dihasilkan.
 - (ii) keuntungan maksimum yang boleh diperolehi, jika keuntungan jualan bagi bantal A ialah RM20 dan bantal B ialah RM12.00.

[4markah]

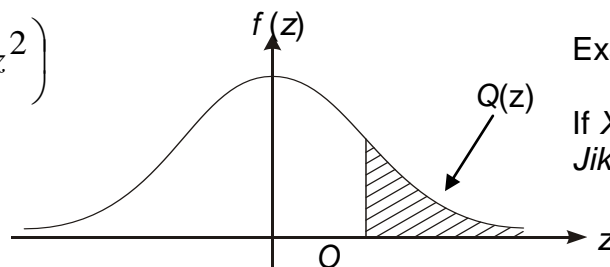
END OF QUESTION PAPER
KERTAS SOALAN TAMAT

**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
				0.00990	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

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

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



Example / Contoh:

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

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