

SULIT

NAMA : TINGKATAN :

MAJLIS PENGETUA SEKOLAH MALAYSIA
KUALA LUMPUR



MODUL *TOP 5* KUALA LUMPUR 2026

PEPERIKSAAN PERCUBAAN

MATEMATIK TAMBAHAN 3472/1

TINGKATAN 5

Kertas 1

2 jam

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. Tulis **nama** dan **tingkatan** anda pada 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. Jadual Kebarangkalian Hujung Atas $Q(z)$ Bagi Taburan Normal $N(0,1)$ disediakan di halaman 4.
9. Kertas peperiksaan ini hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.

SOALAN	MARKAH PENUH	MARKAH DIPEROLEH
BAHAGIAN A		
1	5	
2	5	
3	5	
4	5	
5	5	
6	5	
7	5	
8	6	
9	6	
10	5	
11	6	
12	6	
BAHAGIAN B		
13	8	
14	8	
15	8	
JUMLAH	80	

Kertas soalan ini mengandungi 29 halaman bercetak.

RUMUS
FORMULAE

- | | |
|--|--|
| <p>1 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$</p> <p>2 $a^m \times a^n = a^{m+n}$</p> <p>3 $a^m \div a^n = a^{m-n}$</p> <p>4 $(a^m)^n = a^{mn}$</p> <p>5 $\log_a mn = \log_a m + \log_a n$</p> <p>6 $\log_a \frac{m}{n} = \log_a m - \log_a n$</p> <p>7 $\log_a m^n = n \log_a m$</p> <p>8 $\log_a b = \frac{\log_c b}{\log_c a}$</p> <p>9 $T_n = a + (n-1)d$</p> <p>10 $S_n = \frac{n}{2}[2a + (n-1)d]$</p> <p>11 $T_n = ar^{n-1}$</p> <p>12 $S_n = \frac{a(r^n - 1)}{r - 1} = \frac{a(1 - r^n)}{1 - r}, r \neq 1$</p> <p>13 $S_\infty = \frac{a}{1-r}, r < 1$</p> <p>14 $y = uv, \frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$</p> <p>15 $y = \frac{u}{v}, \frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$</p> <p>16 $\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$</p> | <p>17 Luas di bawah lengkung
<i>Area under a curve</i></p> $= \int_a^b y \, dx \text{ atau (or) } \int_a^b x \, dy$ <p>18 Isi padu kisaran
<i>Volume of revolution</i></p> $= \int_a^b \pi y^2 \, dx \text{ atau (or) } \int_a^b \pi x^2 \, dy$ <p>19 $I = \frac{Q_1}{Q_0} \times 100$</p> <p>20 $\bar{I} = \frac{\sum W_i I_i}{\sum W_i}$</p> <p>21 ${}^n P_r = \frac{n!}{(n-r)!}$</p> <p>22 ${}^n C_r = \frac{n!}{(n-r)!r!}$</p> <p>23 $P(X=r) = {}^n C_r p^r q^{n-r}, p+q=1$</p> <p>24 Min / Mean, $\mu = np$</p> <p>25 $\sigma = \sqrt{npq}$</p> <p>26 $Z = \frac{X - \mu}{\sigma}$</p> <p>27 Panjang lengkok, $s = j\theta$
<i>Arc length, $s = r\theta$</i></p> <p style="padding-left: 40px;">Luas sektor, $L = \frac{1}{2} j^2 \theta$</p> <p>28 <i>Area of sector, $A = \frac{1}{2} r^2 \theta$</i></p> |
|--|--|



- 29 $\sin^2 A + \cos^2 A = 1$
 $\sin^2 A + \cos^2 A = 1$
- 30 $\sec^2 A = 1 + \tan^2 A$
 $\sec^2 A = 1 + \tan^2 A$
- 31 $\operatorname{cosec}^2 A = 1 + \cot^2 A$
 $\operatorname{cosec}^2 A = 1 + \cot^2 A$
- 32 $\sin 2A = 2 \sin A \cos A$
 $\sin 2A = 2 \sin A \cos A$
- 33 $\cos 2A = \cos^2 A - \sin^2 A$
 $= 2 \cos^2 A - 1$
 $= 1 - 2 \sin^2 A$
- 34 $\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$
- 35 $\sin (A \pm B) = \sin A \cos B \pm \cos A \sin B$
 $\sin (A \pm B) = \sin A \cos B \pm \cos A \sin B$
- 36 $\cos (A \pm B) = \cos A \cos B \mp \sin A \sin B$
 $\cos (A \pm B) = \cos A \cos B \mp \sin A \sin B$
- 37 $\tan (A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$
- 38 $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
- 39 $a^2 = b^2 + c^2 - 2bc \cos A$
 $a^2 = b^2 + c^2 - 2bc \cos A$
- 40 Luas segi tiga / *Area of triangle*
 $= \frac{1}{2} ab \sin C$
- 41 Titik yang membahagi suatu tembereng garis
A point dividing a segment of a line
 $(x, y) = \left(\frac{nx_1 + mx_2}{m + n}, \frac{ny_1 + my_2}{m + n} \right)$
- 42 Luas segi tiga / *Area of triangle*
 $= \frac{1}{2} |(x_1 y_2 + x_2 y_3 + x_3 y_1) - (x_2 y_1 + x_3 y_2 + x_1 y_3)|$
- 43 $|\mathbf{r}| = \sqrt{x^2 + y^2}$
- 44 $\hat{\mathbf{r}} = \frac{x\mathbf{i} + y\mathbf{j}}{\sqrt{x^2 + y^2}}$



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	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641	4	8	12	16	20	24	28	32	36
0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247	4	8	12	16	20	24	28	32	36
0.2	.4207	.4168	.4219	.4090	.4052	.4013	.3974	.3936	.3897	.3859	4	8	12	15	19	23	27	31	35
0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483	4	7	11	15	19	22	26	30	34
0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121	4	7	11	15	18	22	25	29	32
0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776	3	7	10	14	17	20	24	27	31
0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451	3	7	10	13	16	19	23	26	29
0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148	3	6	9	12	15	18	21	24	27
0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867	3	5	8	11	14	16	19	22	25
0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611	3	5	8	10	13	15	18	20	23
1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379	2	5	7	9	12	14	16	19	21
1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170	2	4	6	8	10	12	14	16	18
1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985	2	4	6	7	9	11	13	15	17
1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823	2	3	5	6	8	10	11	13	14
1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681	1	3	4	6	7	8	10	11	13
1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559	1	2	4	5	6	7	8	10	11
1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455	1	2	3	4	5	6	7	8	9
1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367	1	2	3	4	4	5	6	7	8
1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294	1	1	2	3	4	4	5	6	6
1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233	1	1	2	2	3	4	4	5	5
2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183	0	1	1	2	2	3	3	4	4
2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143	0	1	1	2	2	2	3	3	4
2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110	0	1	1	1	2	2	2	3	3
2.3	.0107	.0104	.0102								0	1	1	1	1	2	2	2	2
				.02990	.02964	.02939	.02914				3	5	8	10	13	15	18	20	23
								.02889	.02866	.02842	2	5	7	9	12	14	16	16	21
2.4	.02820	.02798	.02776	.02755	.02734						2	4	6	8	11	13	15	17	19
						.02714	.02695	.02676	.02657	.02639	2	4	6	7	9	11	13	15	17
2.5	.02621	.02604	.02587	.02570	.02554	.02539	.02523	.02508	.02494	.02480	2	3	5	6	8	9	11	12	14
2.6	.02466	.02453	.02440	.02427	.02415	.02402	.02391	.02379	.02368	.02357	1	2	3	5	6	7	9	9	10
2.7	.02347	.02336	.02326	.02317	.02307	.02298	.02289	.02280	.02272	.02264	1	2	3	4	5	6	7	8	9
2.8	.02256	.02248	.02240	.02233	.02226	.02219	.02212	.02205	.02199	.02193	1	1	2	3	4	4	5	6	6
2.9	.02187	.02181	.02175	.02169	.02164	.02159	.02154	.02149	.02144	.02139	0	1	1	2	2	3	3	4	4
3.0	.02135	.02131	.02126	.02122	.02118	.02114	.02111	.02107	.02104	.02100	0	1	1	2	2	2	3	3	4

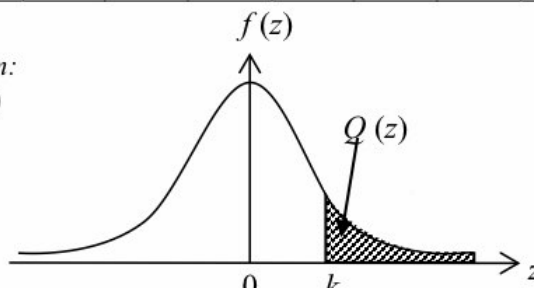
For negative z use relation

Bagi z negatif guna hubungan:

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

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

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



Example / Contoh:

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

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

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

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

SULIT

[Lihat halaman sebelah]

BAHAGIAN A

[64 markah]

Jawab semua soalan.

1. Sebutan ketiga bagi suatu jangjang aritmetik ialah 4 dan sebutan keempat ialah 7.

The third term of an arithmetic progression is 4 and the fourth term is 7.

- (a) Nyatakan beza sepunya jangjang itu.

State the common difference of the progression.

- (b) Cari hasil tambah 25 sebutan pertama jangjang itu.

Find the sum of the first 25 terms of the progression.

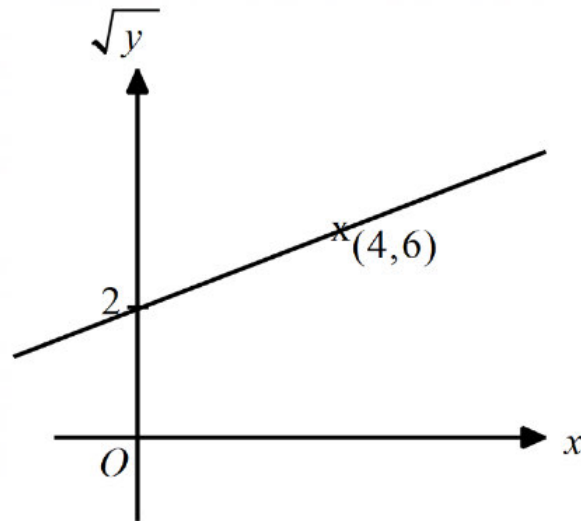
[5 markah]

[5 marks]

Jawapan / Answer:



2. Rajah 2 menunjukkan graf garis lurus penyuaian terbaik
Diagram 2 shows graph of line of best fit



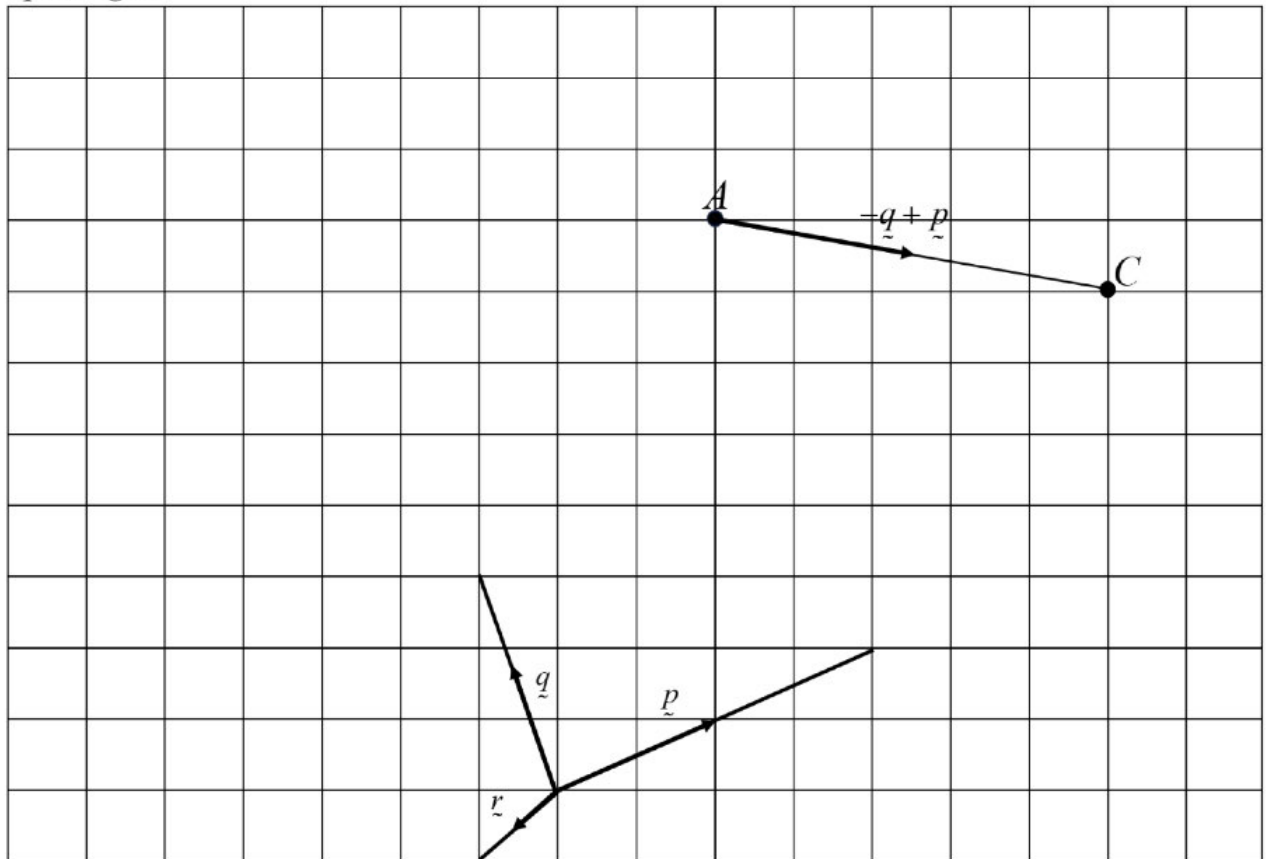
Rajah 2
Diagram 2

- (a) Ungkapkan y dalam sebutan x .
Express y in terms of x . [3 markah]
[3 marks]
- (b) Diberi titik $(p, q - 1)$ terletak pada garis lurus penyuaian terbaik, ungkapkan q dalam sebutan p .
Given that the point $(p, q - 1)$ lies on the line of best fit, express q in terms of p . [2 markah]
[2 marks]

Jawapan / Answer:

3. Rajah 3 menunjukkan vektor $\underline{p}$, vektor $\underline{q}$, vektor $\underline{r}$ dan vektor $\overrightarrow{AC}$ dilukis pada grid segi empat sama.

Diagram 3 show the vector $\underline{p}$, the vector $\underline{q}$, vector $\underline{r}$ and vektor $\overrightarrow{AC}$ drawn on a square grid.



Rajah 3
Diagram 3

Diberi bahawa $\overrightarrow{AD} = 2\underline{r} - \underline{q}$

Given that $\overrightarrow{AD} = 2\underline{r} - \underline{q}$

- (a) Lukis $\overrightarrow{DC}$ pada Rajah 3.

Draw $\overrightarrow{DC}$ on a Diagram 3.

[3 markah]

[3 marks]

(b) Diberi $\underline{p} = 4\underline{i} + 2\underline{j}$, $\underline{q} = -\underline{i} + 3\underline{j}$ dan $\underline{r} = -\underline{i} - \underline{j}$.

Given that $\underline{p} = 4\underline{i} + 2\underline{j}$, $\underline{q} = -\underline{i} + 3\underline{j}$ and $\underline{r} = -\underline{i} - \underline{j}$

Cari magnitud $\overrightarrow{DC}$

Find magnitude $\overrightarrow{DC}$

[2 markah]

[2 marks]

Jawapan / Answer:



4. (a) Diberi persamaan kuadratik dalam bentuk am.

Given a quadratic equation in general form.

$$ax^2 + bx + c = 0, \quad a \neq 0$$

Dengan menggunakan kaedah penyempurnaan kuasa dua, terbitkan rumus kuadratik,

Using the method of completing the square, derive the quadratic formula,

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

[3 markah]

[3 marks]

- (b) Seterusnya, selesaikan persamaan $3 = 2x^2 + 8x$.

Berikan jawapan betul kepada dua tempat perpuluhan.

Hence, solve the equation $3 = 2x^2 + 8x$.

Give the answers correct to two decimal places.

[2 markah]

[2 marks]

Jawapan / Answer:

5. (a) Seorang murid mengira jumlah panjang dua utas dawai bagi Projek Model Matematik. Panjang dawai pertama dan kedua masing-masing ialah $\frac{5-2\sqrt{3}}{2+\sqrt{3}}$ dan $\frac{4+\sqrt{3}}{2-\sqrt{3}}$.

Cari jumlah panjang kedua-dua dawai itu dalam bentuk $a+b\sqrt{3}$.

A student calculates the total length of two pieces of wire for a mathematics model project. The length of the first piece of wire is $\frac{5-2\sqrt{3}}{2+\sqrt{3}}$ and the length of the second piece of wire is $\frac{4+\sqrt{3}}{2-\sqrt{3}}$.

Find the total length of both wires in form $a+b\sqrt{3}$.

[3 markah]

[3 marks]

- (b) Dawai dijual pada harga RM40 semeter. Murid tersebut hanya mempunyai RM100. Tentukan sama ada wang tersebut mencukupi untuk membeli kedua-dua dawai itu. Berikan alasan anda.

Wire is sold at RM40 per metre. The student has only RM100. Determine whether the money is sufficient to purchase both pieces of wire. Give a reason for your answer.

[2 markah]

[2 marks]

Jawapan / Answer:

Jawapan soalan No. 5 / *Answer question No. 5:*

6. (a) Cari nilai bagi:

$$\lim_{x \rightarrow 2} \frac{x^2 + 5x - 14}{x^2 - 4}$$

Find the value of

$$\lim_{x \rightarrow 2} \frac{x^2 + 5x - 14}{x^2 - 4}$$

[2 markah]

[2 marks]

(b) Cari $\frac{dy}{dx}$ bagi $y = 3x^2 - 4x$ dengan menggunakan prinsip pertama.

Find $\frac{dy}{dx}$ for $y = 3x^2 - 4x$ by using first principles.

[3 markah]

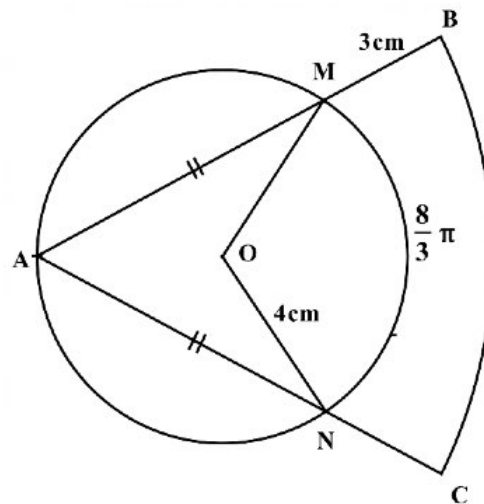
[3 marks]

Jawapan / Answer:



7. Rajah 7 menunjukkan sektor ABC berpusat A. AMN ialah sebuah bulatan berjejari 4 cm berpusat O.

The diagram 7 shows a sector ABC with centre A. AMN is a circle with radius 4 cm and centre O.



Rajah 7
Diagram 7

Diberi panjang lengkok MN ialah $\frac{8}{3}\pi$ dan MB ialah 3 cm,

Given that the length of arc MN is $\frac{8}{3}\pi$ and MB is 3 cm,

[Guna/Use $\pi = 3.142$]

- (a) Hitung $\angle MON$ in radian.
Calculate $\angle MON$ in radians.
- (b) Seterusnya, hitung perimeter dalam cm, bagi sektor ABC.
Hence, calculate the perimeter, in cm, of the sector ABC.

[5 markah]

[5 marks]

Jawapan / Answer:

Jawapan soalan No. 7 / *Answer question No. 7:*

8. (a) Ringkaskan dalam sebutan n .
Simplify in terms of n .

$${}^{n-1}P_3$$

[2 markah]

[2 marks]

- (b) Dalam sebuah majlis makan malam, seorang praktikal diminta untuk menyusun 8 orang murid pada sebuah meja bulat. Murid-murid itu terdiri daripada 6 orang murid lelaki dan 2 orang murid perempuan.
Berapakah cara susunan yang boleh disusun oleh guru itu untuk semua murid tersebut?

At a dinner function, a trainee teacher is asked to arrange 8 students around a circular table. The students consist of 6 male students and 2 female students.

How many different seating arrangements can be made for all the students?

[2 markah]

[2 marks]

- (c) Sebuah jawatankuasa sesuatu organisasi terdiri daripada 8 orang ahli. Pemilihan hendak dipilih daripada 36 orang lelaki dan 14 orang perempuan. Hitungkan bilangan jawatankuasa yang dapat dibentuk sekiranya jawatankuasa yang dipilih mesti seimbang bilangan dari segi jantina.

A committee of an organization consists of 8 members. The selection is to be made from 36 men and 14 women.

Calculate the number of committees that can be formed if the selected committee must have an equal number of men and women.

[2 markah]

[2 marks]

Jawapan / Answer:

Jawapan soalan No. 8 / *Answer question No. 8:*



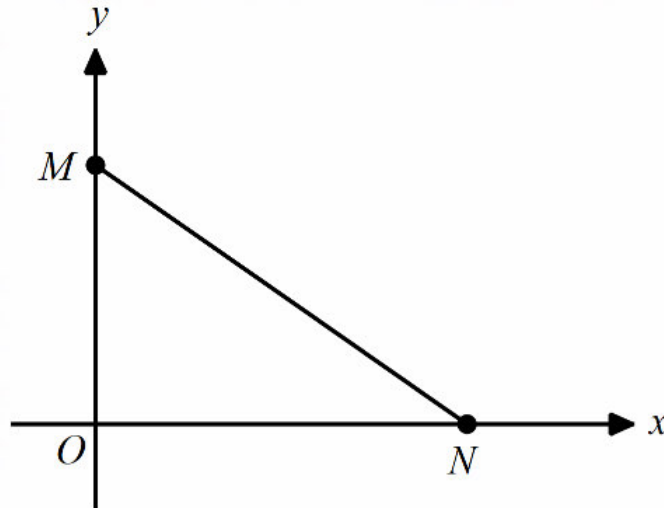
SULIT

17

3472/1

9. Rajah 9 menunjukkan garis lurus MN dengan persamaan $\frac{x}{3} + \frac{y}{9} = 1$.

Diagram 9 shows the straight-line MN with the equation $\frac{x}{3} + \frac{y}{9} = 1$.



Rajah 9
Diagram 9

- a) Diberi bahawa titik P membahagi tembereng garis MN dengan keadaan $MP = 2PN$. Cari koordinat titik P .

Given that point P divides the line segment MN such that $MP = 2PN$. Find the coordinate of P

[2 markah]

[2 marks]

- b) Seterusnya, cari persamaan lokus T dengan keadaan $\angle MTP$ adalah sentiasa 90° .

Hence, find the equation of the locus T such that $\angle MTP$ is always 90° .

[2 markah]

[2 marks]

- c) Tentukan sama ada lokus T menyentuh paksi- x . Justifikasikan jawapan anda.

Determine whether locus T touches the x -axis. Justify your answer.

[2 markah]

[2 marks]

Jawapan soalan No. 9 / *Answer question No. 9:*

10. Sebuah kotak mengandungi 3 biji bola berwarna merah dan 2 biji bola berwarna kuning. Dua biji bola dipilih secara rawak tanpa dikembalikan semula. Diberi X ialah bilangan kali memilih bola merah, dengan menggunakan gambar rajah pokok,

A box contains 3 red balls and 2 yellow balls. Two balls are selected at random without replacement. Given X is the number of times a red ball is selected, by using the tree diagram,

- (a) hitung kebarangkalian bagi setiap nilai X yang mungkin.

calculate the probability for each possible value of (X) .

- (b) Seterusnya, isi Jadual 10 dan bina graf taburan kebarangkalian bagi X .

Hence, fill in the Table 10 and construct a probability distribution graph for X .

$X = r$			
$P(X = r)$			

Jadual 10

Table 10

[5 markah]

[5 marks]

Jawapan / Answer:

Jawapan soalan No. 10/ *Answer question No.10:*

11. (a) Buktikan bahawa $\tan^2 x + 2\cos^2 x - \sec^2 x = \cos 2x$
Prove that $\tan^2 x + 2\cos^2 x - \sec^2 x = \cos 2x$
- (b) Selesaikan persamaan $4 \sin x \cos x = \sin x$ untuk $0^\circ \leq x \leq 270^\circ$.
Solve the equation $4 \sin x \cos x = \sin x$ for $0^\circ \leq x \leq 270^\circ$.

[6 markah]

[6 marks]

Jawapan / Answer:

12. (a) Diberi lengkung $y = f(x)$ dan $\frac{d}{dx}[f(x)] = 2x - 4$. Lengkung itu mempunyai nilai minimum 5 apabila $x = 2$. cari $f(x)$ dalam sebutan x .

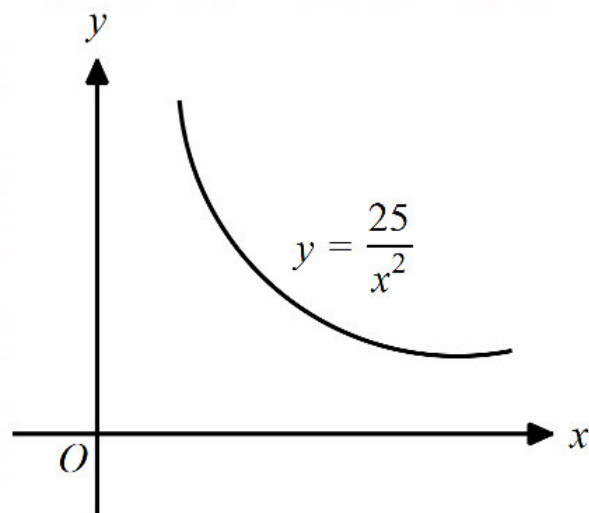
Given the curve $y = f(x)$ and $\frac{d}{dx}[f(x)] = 2x - 4$. The curve has minimum value of 5 when $x = 2$, find $f(x)$ in terms of x .

[3 markah]

[3 marks]

- (b) Rajah 12 menunjukkan lengkung $y = \frac{25}{x^2}$

Diagram 2 shows the curve $y = \frac{25}{x^2}$



Rajah 12

Diagram 12

Cari luar rantau yang dibatasi oleh lengkung, paksi y , garis lurus $y = 1$ dan $y = 4$.

Find the area bounded by the curve, the y -axis, the straight line $y = 1$ and $y = 4$.

[3 markah]

[3 marks]

Jawapan / Answer:



Jawapan soalan No. 12/ *Answer question No.12:*

Bahagian B
[16 markah]

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

13. (a) Diberi bahawa persamaan kuadratik $sx^2 - 7tx + 16s = 0$, dengan keadaan s dan t ialah pemalar mempunyai dua punca nyata yang sama, cari nisbah $s : t$.
Seterusnya, cari nilai $s + t$.

Given the quadratic equation $sx^2 - 7tx + 16s = 0$, where s and t are constant and equal roots, find $s : t$.

Hence find the value of $s + t$.

[3 markah]

[3 marks]

- (b) Cari julat nilai x bagi ketaksaman kuadratik $3 < 4x^2 + 4x$ dengan menggunakan kaedah garis nombor.

Find the range of values of x for the quadratic inequality $3 < 4x^2 + 4x$ by using the number line method.

[2 markah]

[2 marks]

Jawapan / Answer:

13. (c) Diberi fungsi kuadratik $g(x) = a(x-b)^2 + c$ dengan keadaan a , b dan c ialah pemalar, mempunyai nilai maksimum 10. Persamaan paksi simetri bagi graf $g(x)$ itu ialah $x = 4$.

Given a quadratic function $g(x) = a(x-b)^2 + c$, where a , b and c are constants, has a maximum value of 10. The equation of the axis of symmetry of the graph $g(x)$ is $x = 4$.

Cari

Find

- (i) julat nilai a ,
the range of values of a ,
- (ii) nilai b ,
the values of b ,

Jawapan / Answer:

14. (a) Diberi garis lurus $y = -x + 6$ ialah tangen kepada lengkung $y = x^3 + x^2 - 2x + 5$ dimana $x < 0$ pada titik A . Cari koordinat titik A .

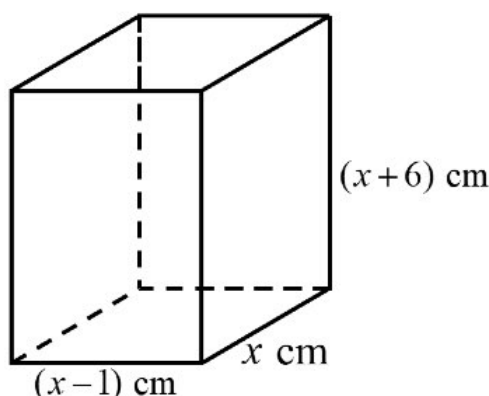
Given straight line $y = -x + 6$ is the tangent to the curve $y = x^3 + x^2 - 2x + 5$ where $x < 0$ at point A . Find the coordinate of point A .

[3 markah]

[3 marks]

- (b) Rajah 14 menunjukkan sebuah kuboid dengan panjang, $(x - 1)$ cm, lebar, x cm dan tinggi, $(x + 6)$ cm.

Diagram 14 shows a cuboid with a length of $(x - 1)$ cm, a width of x cm, and a height of $(x + 6)$ cm.



Rajah 14
Diagram 14

Diberi bahawa lebar kuboid itu menyusut sebanyak 3% daripada nilai asal 4. Cari peratus perubahan dalam isi padu kuboid tersebut.

Given that the width of the cuboid decreases by 3% from the original value of 4.

Find the percentage of change in the volume of cuboid.

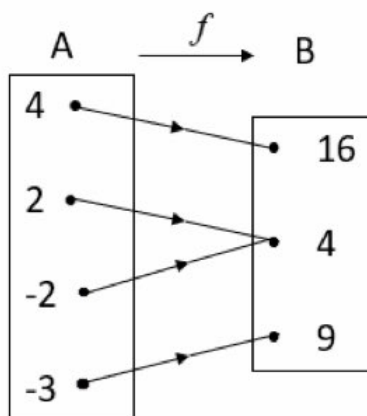
[5 markah]

[5 marks]

Jawapan / Answer:

Jawapan soalan No. 14 / *Answer question No. 14:*

15. (a) Rajah 15 menunjukkan hubungan antara set A dan set B.
Diagram 15 shows the relation between set A and set B.



Rajah 15
Diagram 15

- (i) Dengan menggunakan tatatanda fungsi, ungkapkan f dalam sebutan x .
By using function notation, express f in terms of x . [1 markah]
[1 marks]
- (ii) Seterusnya, dengan menggunakan jawapan di soalan 15(a)(i), cari $f''(x)$.
Hence, by using the answer in the question 15(a)(i), determine $f''(x)$. [4 markah]
[4 marks]
- (b) Suatu fungsi f ditakrifkan oleh $f : x \rightarrow |x-3|$ untuk domain $-2 \leq x \leq 8$.
Lakarkan graf f dan nyatakan julai yang sepadan.
A function f is defined by $f : x \rightarrow |x-3|$ for domain $-2 \leq x \leq 8$.
Sketch the graph f and state the corresponding range. [3 markah]
[3 marks]

Jawapan soalan No. 15 / *Answer question No. 15:*

SOALAN TAMAT