



MODUL JAWAB UNTUK JAYA

SIJIL PELAJARAN MALAYSIA 2025

MATEMATIK TAMBAHAN
Kertas 1 Set 1

3472/1

2 jam

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

	SOALAN	MARKAH PENUH	MARKAH DIPEROLEH
	BAHAGIAN A		
1. Tulis nombor kad pengenalan dan angka giliran anda pada petak yang disediakan.	1	4	
2. Kertas peperiksaan ini mengandungi dua bahagian: Bahagian A dan Bahagian B .	2	5	
3. Jawapan hendaklah ditulis pada ruang jawapan yang disediakan di dalam kertas peperiksaan ini.	3	4	
4. Kertas peperiksaan ini adalah dalam dwibahasa.	4	5	
5. Jawapan boleh ditulis dalam bahasa Melayu atau bahasa Inggeris.	5	4	
6. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.	6	5	
7. Kerja mengira anda mesti ditunjukkan.	7	5	
8. Jadual Kebarangkalian Hujung Atas $Q(z)$ bagi Taburan Normal $N(0, 1)$ disediakan di halaman 4.	8	5	
9. Kertas peperiksaan ini hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.	9	7	
	10	5	
	11	8	
	12	7	
	JUMLAH	64	
	BAHAGIAN B		
	13	8	
	14	8	
	15	8	
	JUMLAH	16	
	JUMLAH KESELURUHAN MARKAH		

Kertas peperiksaan ini mengandungi 21 halaman bercetak dan 1 halaman tidak bercetak.

RUMUS FORMULAE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$17 \quad \begin{aligned} &\text{Luas di bawah lengkung} \\ &\text{Area under a curve} \\ &= \int_b^a y \, dx \quad \text{atau (or)} \quad \int_b^a x \, dy \end{aligned}$$

$$18 \quad \begin{aligned} &\text{Isipadu janaan} \\ &\text{Volume of generation} \\ &= \int_b^a \pi y^2 \, dx \quad \text{atau (or)} \quad \int_b^a \pi x^2 \, dy \end{aligned}$$

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

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

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

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

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

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

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

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

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

$$28 \quad \text{Luas sektor}, L = \frac{1}{2} j^2 \theta \\ \text{Area of sector}, A = \frac{1}{2} r^2 \theta$$

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

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

$$31 \quad \operatorname{cosec}^2 A = 1 + \cot^2 A \\ \operatorname{cosec}^2 A = 1 + \cot^2 A$$

$$32 \quad \sin 2A = 2 \sin A \cos A \\ \sin 2A = 2 \sin A \cos A$$

$$33 \quad \cos 2A = \cos^2 A - \sin^2 A \\ = 2\cos^2 A - 1 \\ = 1 - 2\sin^2 A \\ \cos 2A = \cos^2 A - \sin^2 A \\ = 2\cos^2 A - 1 \\ = 1 - 2\sin^2 A$$

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

$$35 \quad \sin(A \pm B) = \sin A \cos B \pm \cos A \sin B \\ \sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$$

$$36 \quad \cos(A \pm B) = \cos A \cos B \mp \sin A \sin B \\ \cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$

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

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

$$39 \quad a^2 = b^2 + c^2 - 2bc \cos A \\ a^2 = b^2 + c^2 - 2bc \cos A$$

$$40 \quad \text{Luas segi tiga/ Area of triangle} \\ = \frac{1}{2} ab \sin C$$

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

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

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

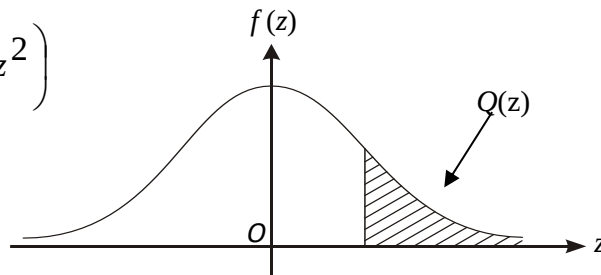
$$44 \quad \hat{r} = \frac{x\hat{i} + y\hat{j}}{\sqrt{x^2 + y^2}}$$

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

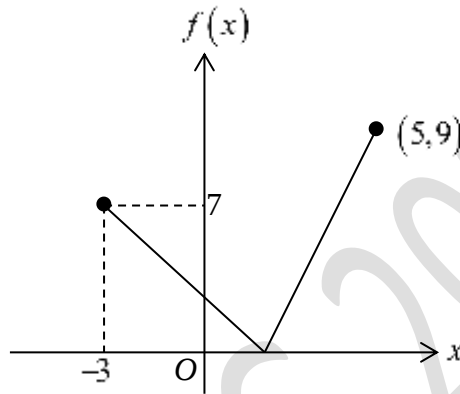
Bahagian A

[64 markah]

Jawab **semua** soalan.

- 1 Rajah 1 menunjukkan graf bagi fungsi $f : x \rightarrow |1 - 2x|$ untuk domain $-3 \leq f(x) \leq 5$.

Diagram 1 shows the graph of the function $f : x \rightarrow |1 - 2x|$ for the domain $-3 \leq f(x) \leq 5$.



Rajah 1
Diagram 1

Nyatakan
State

- (a) (i) objek bagi 9,
the object of 9,
(ii) imej bagi 2,
the image of 2,
(b) verteks,
the vertex,
(c) domain bagi $0 \leq f(x) \leq 7$.
the domain of $0 \leq f(x) \leq 7$.

[2 markah]
[2 marks]

[1 markah]
[1 mark]

[1 markah]
[1 mark]

Jawapan / Answer :

- 2 Punca-punca bagi persamaan kuadratik $x(x-6) = 4 + p$ masing-masing 3α dan 3β , dengan keadaan p ialah pemalar.

The roots of the quadratic equations $x(x-6) = 4 + p$ are 3α and 3β respectively, where p is a constant.

- (a) Cari julat nilai p jika $\alpha \neq \beta$.

Find the range of p if $\alpha \neq \beta$.

[2 markah]

[2 marks]

- (b) Diberi $\frac{\alpha}{2}$ dan $\frac{\beta}{2}$ adalah punca-punca bagi satu lagi persamaan kuadratik

$2x^2 + qx + \frac{1}{3} = 0$, dengan keadaan q ialah pemalar. Cari nilai p dan q .

Given that $\frac{\alpha}{2}$ and $\frac{\beta}{2}$ are the roots of another quadratic equation

$2x^2 + qx + \frac{1}{3} = 0$, *with q is a constant. Find the values of p and q .*

[3 markah]

[3 marks]

Jawapan / Answer :

- 3 Diberi bahawa tiga sebutan pertama suatu jujukan ialah $\log_{10} p$, $\log_{10} pq$ dan $\log_{10} pq^2$.

It is given that the first three terms of a sequence are $\log_{10} p$, $\log_{10} pq$ and $\log_{10} pq^2$.

- (a) Tunjukkan bahawa jujukan itu ialah suatu janjang aritmetik.

Show that the sequence is an arithmetic progression.

[2 markah]

[2 marks]

- (b) Cari hasil tambah enam sebutan pertama.

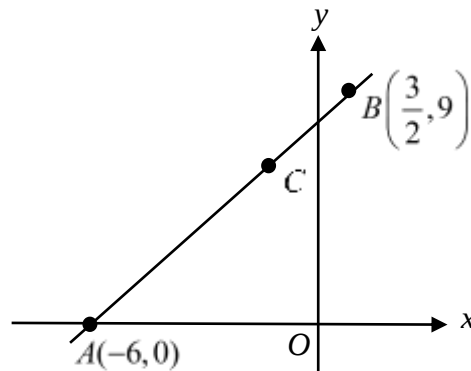
Find the sum of the first six terms.

[2 markah]

[2 marks]

Jawapan / Answer :

- 4 Rajah 2 menunjukkan suatu garis lurus AB .
Diagram 2 shows a straight line AB .



Rajah 2
 Diagram 2

Titik C membahagi tembereng garis AB dengan keadaan $2AB = 3AC$. Cari
The point C divides the line segment AB such that $2AB = 3AC$. Find

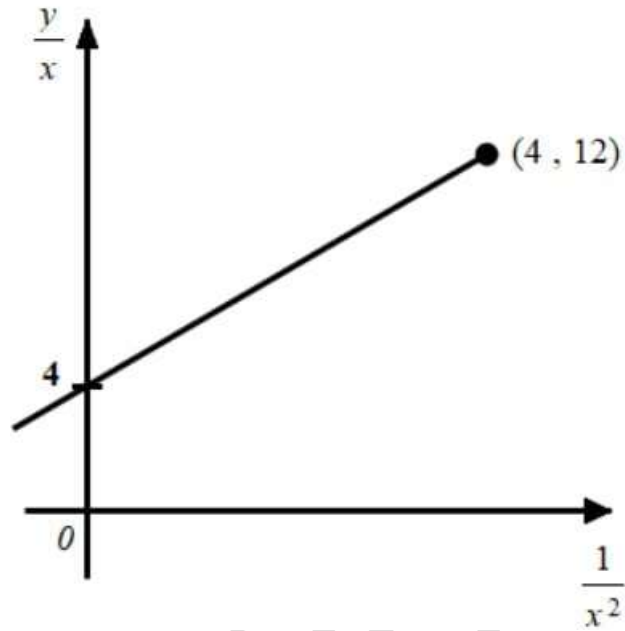
- (a) koordinat C ,
the coordinates of C , [2 markah]
 [2 marks]
- (b) persamaan garis lurus yang berserenjang dengan AB dan melalui C .
the equation of the straight line which is perpendicular to AB and passing through C .

[3 markah]
 [3 marks]

Jawapan / Answer :

- 5 Rajah 3 menunjukkan graf garis lurus $\frac{y}{x}$ melawan $\frac{1}{x^2}$.

Diagram 3 shows a straight line graph $\frac{y}{x}$ against $\frac{1}{x^2}$.



Rajah 3
Diagram 3

- (a) Ungkapkan y dalam sebutan x .
Express y in terms of x .
- (b) Seterusnya, nyatakan nilai y jika $x = 3.5$.
Hence, state the value of y if $x = 3.5$.

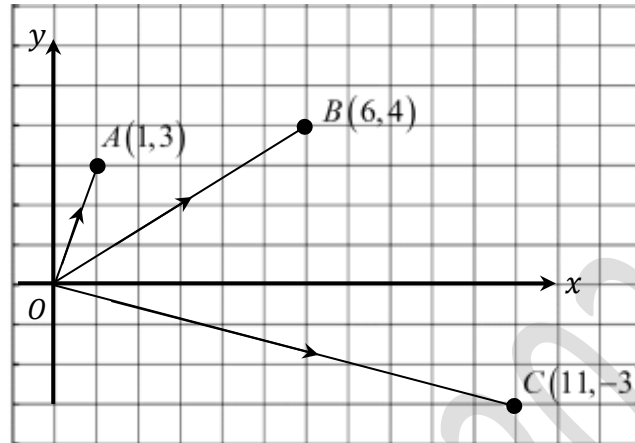
[3 markah]
[3 marks]

[1 markah]
[1 mark]

Jawapan / Answer :

- 6 Rajah 4 menunjukkan tiga vektor $\overrightarrow{OA}$, $\overrightarrow{OB}$ dan $\overrightarrow{OC}$ dilukis pada suatu satah Cartes. Diberi bahawa $\overrightarrow{OB} : \overrightarrow{OE} = 2 : 3$ dan O, B, E adalah segaris.

Diagram 4 shows three vectors $\overrightarrow{OA}$, $\overrightarrow{OB}$ and $\overrightarrow{OC}$ drawn on a Cartesian plane. It is given that $\overrightarrow{OB} : \overrightarrow{OE} = 2 : 3$ and O, B, E are collinear.



Rajah 4
Diagram 4

- (a) (i) Pada Rajah 4, tanda dan label koordinat titik E .
On Diagram 4, mark and label coordinates of E .
- (ii) Nyatakan $\overrightarrow{CE}$.
State $\overrightarrow{CE}$.
- [2 markah]
[2 marks]
- (b) Diberi $\overrightarrow{AN} = m\mathbf{i} - 3\mathbf{j}$, dengan keadaan m ialah pemalar dan $\overrightarrow{AN}$ adalah selari dengan $\overrightarrow{CE}$.
Dengan menggunakan vektor, cari nilai m .
Given $\overrightarrow{AN} = m\mathbf{i} - 3\mathbf{j}$, such that m is a constant and $\overrightarrow{AN}$ is parallel to $\overrightarrow{CE}$.
By using vectors, find the value of m .
- [3 markah]
[3 marks]

Jawapan / Answer :

- 7 (a) Diberi
Given that

$$\int \frac{1}{(1-2x)^3} dx = \frac{1}{p} (1-2x)^q + c .$$

Cari nilai p dan q .

Find the value of p and q .

[3 markah]

[3 marks]

- (b) Seterusnya, cari nilai
Hence , find the value of

$$\int_{-1}^1 \frac{1}{(1-2x)^3} dx$$

[2 markah]

[2 marks]

Jawapan / Answer :

8 (a) Cari *had* $\frac{x^2 - 4x + 3}{2x^2 - 5x - 3}$.
 Find $\lim_{x \rightarrow 3} \frac{x^2 - 4x + 3}{2x^2 - 5x - 3}$.

[3 markah]

[3 marks]

(b) Diberi $y = \frac{2x+1}{x^2-3}$, cari $\frac{dy}{dx}$.
 Given $y = \frac{2x+1}{x^2-3}$, find $\frac{dy}{dx}$.

[2 markah]

[2 marks]

Jawapan / Answer :

- 9 Pengawas sekolah telah menyusun kerusi untuk perhimpunan bagi 15 orang guru. Barisan hadapan terdapat 7 buah kerusi manakala barisan belakang terdapat 8 buah kerusi. 3 orang pentadbir akan duduk di tengah-tengah barisan hadapan.

The school prefect has arranged chairs for an assembly for 15 teachers. The front row has 7 chairs while the back row has 8 chairs. 3 administrators will sit in the middle of the front row.

- (a) Hitung bilangan cara Cikgu Hamdan dan Cikgu Azlan memilih tempat duduk jika mereka bukan pentadbir serta tidak duduk bersebelahan.

Calculate the numbers of different seat that Cikgu Hamdan and Cikgu Azlan can be choose if they are not administrator and not sitting side by side.

[4 markah]

[4 marks]

- (b) Terdapat 6 orang guru termasuk Cikgu Hamdan ingin memberi ucapan. Hitung bilangan cara untuk menyusun turutan guru berucap jika Cikgu Hamdan tidak menjadi orang pertama dan orang terakhir untuk berucap.

There are 6 teachers including Cikgu Hamdan who want to give a speech. Calculate the number of ways to arrange the order of the teachers speaking if Cikgu Hamdan does not to be the first and last person to speak.

[3 markah]

[3 marks]

Jawapan / Answer :

10 Diberi bahawa $\log_c(pq) = 2$ dan $\log_c(p^2q^3) = 3$.

Given that $\log_c(pq) = 2$ and $\log_c(p^2q^3) = 3$.

(a) Cari nilai-nilai bagi $\log_c p$ dan $\log_c q$.

Find the values of $\log_c p$ and $\log_c q$.

[4 markah]

[4 marks]

(b) Seterusnya, nyatakan nilai-nilai bagi p dan q apabila $c = 2$.

Hence, state the values of p and q when $c = 2$.

[1 markah]

[1 mark]

Jawapan / Answer :

- 11** Shahrul mempunyai koleksi kereta mainan yang dikumpulkan pada setiap bulan. Bilangan kereta mainannya bertambah pada setiap bulan mengikut janjang geometri. Jumlah kereta mainannya pada empat bulan pertama ialah sepuluh kali jumlah kereta mainan pada dua bulan pertama.

Shahrul has a toy car collection which he collects every month. The number of toy cars increases every month according to geometric progression. The total number of toy cars in the first four months is ten times the total number of toy cars in the first two month.

- (a) Jika r mewakili nisbah sepunya, tunjukkan bahawa $r^4 - 10r^2 + 9 = 0$. Seterusnya, cari nilai positif r .

If r represents the common ratio, show that $r^4 - 10r^2 + 9 = 0$. Hence, find the positive values of r .

[5 markah]

[5 marks]

- (b) Hitung perbelanjaan yang dikeluarkan oleh Shahrul dalam masa 6 bulan itu jika dia mula membeli 3 buah kereta mainan dan purata harga sebuah kereta ialah RM7.25.

Calculate the expenses paid by Shahrul in the 6 months if he started to buy 3 toy cars and the average price of a toy car is RM7.25.

[3 markah]

[3 marks]

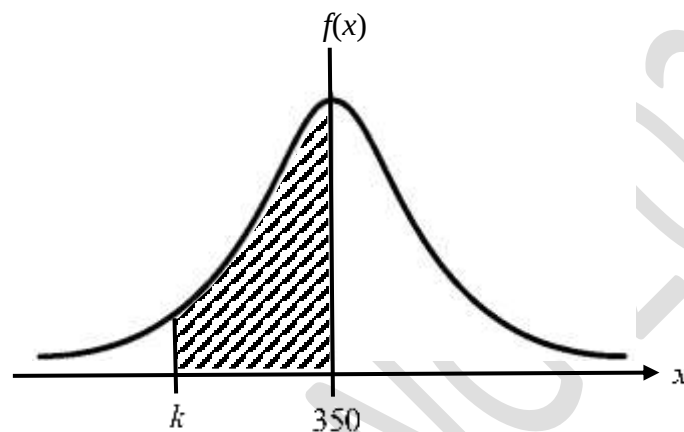
Jawapan / Answer :

- 12 Rajah 5(i) menunjukkan graf taburan normal untuk pemboleh ubah rawak X yang mewakili jisim oren, dalam gram, yang dijual di sebuah gerai buah-buahan dengan min 350 g dan sisihan piawai 40 g.

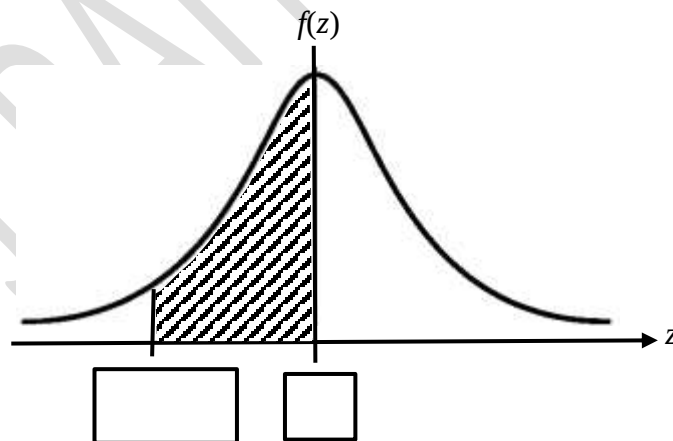
Manakala, Rajah 5(ii) menunjukkan graf taburan normal piawai yang sepadan dengan graf di Rajah 5(i). Diberi luas rantau berlorek ialah 37.29%.

Diagram 5(i) shows the normal distribution curve for random variable of X that represents the mass of orange, in gram, sold at a fruit stall with mean of 350 g and standard deviation of 40 g.

Whereas, Diagram 5(ii) shows the standard normal distribution curve correspond to the graph in Diagram 5(ii). Given the area of shaded region is 37.29%.



Rajah 5(i)
Diagram 5(i)



Rajah 5 (ii)
Diagram 5 (ii)

- (a) Pada Rajah 5 (ii), isi tempat kosong dengan nilai atau ungkapan dalam sebutan k yang sepadan dengan Rajah 5 (i).

On Diagram 5 (ii), fill in the blank with value or expression in terms of k which is correspond to Diagram 5 (i).

[2 markah]

[2 marks]

- (b) (i) Ungkapkan luas rantau berlorek pada Rajah 5 (ii) sebagai tatatanda kebarangkalian.

Express the area of the shaded region in Diagram 5 (ii) as probability notation.

- (ii) Seterusnya, cari nilai k .

Hence, find the value of k .

[5 markah]

[5 marks]

Jawapan / Answer :

Bahagian B

[16 markah]

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

- 13 (a) Diberi persamaan $2^{2x+1} \times 3^{x-1} = 8^x \times 3^{2x}$. Tunjukkan bahawa $6^x = \frac{2}{3}$.

Given the equation $2^{2x+1} \times 3^{x-1} = 8^x \times 3^{2x}$. Show that $6^x = \frac{2}{3}$.

[4 markah]

[4 marks]

- (b) Ungkapkan $\frac{3}{3-\sqrt{6}} + \frac{3}{2}\sqrt{\frac{8}{27}}$ dalam bentuk $a + b\sqrt{6}$.

Express $\frac{3}{3-\sqrt{6}} + \frac{3}{2}\sqrt{\frac{8}{27}}$ in the $a + b\sqrt{6}$ form.

[4 markah]

[4 marks]

Jawapan / Answer :

- 14 (a) Cari nilai kosek 120° dalam bentuk surd.

Find the value cosec 120° in surd form.

[4 markah]

[4 marks]

- (b) Diberi bahawa $\cos x = 2t$, dengan keadaan x ialah sudut tirus, ungkapkan $\cos 2x$ dalam sebutan t .

Given that $\cos x = 2t$, such that x is an acute angle, express $\cos 2x$ in terms of t .

[2 markah]

[2 marks]

- (c) Diberi bahawa $\sin x = \frac{15}{17}$ bagi $\frac{\pi}{2} \leq x \leq \pi$ dan $\cos y = -\frac{3}{5}$ bagi $\pi \leq y \leq \frac{3\pi}{2}$, cari $\cos(x+y)$.

Given that $\sin x = \frac{15}{17}$ for $\frac{\pi}{2} \leq x \leq \pi$ and $\cos y = -\frac{3}{5}$ for $\pi \leq y \leq \frac{3\pi}{2}$, find $\cos(x+y)$.

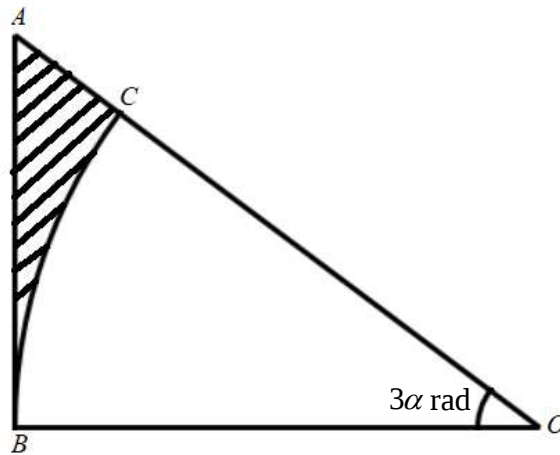
[2 markah]

[2 marks]

Jawapan / Answer :

- 15 Rajah 6 menunjukkan sebuah segi tiga bersudut tegak AOB dan sebuah sektor COB dengan pusat O .

Diagram 6 shows a right-angled triangle AOB and a sector COB with centre O .



Rajah 6
Diagram 6

Diberi bahawa $OB = r$ cm dan $OC = 4CA$. Perimeter kawasan yang berlorek ialah 20 cm.

It is given that $OB = r$ cm and $OC = 4CA$. Perimeter of shaded region is 20 cm.

- (a) Tunjukkan bahawa $r = \frac{20}{3\alpha + 1}$.

Show that $r = \frac{20}{3\alpha + 1}$.

[4 markah]

[4 marks]

- (b) Seterusnya, cari luas kawasan yang berlorek dalam sebutan α .

Hence, find the area of the shaded region in terms of α .

[4 markah]

[4 marks]

Jawapan / Answer :

Jawapan / Answer :

JU PAHANG 2025

KERTAS PEPERIKSAAN TAMAT

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