NAMA :..... TINGKATAN :.....

MAJLIS PENGETUA SEKOLAH MALAYSIA
KUALA LUMPUR

MODUL *TOP* 5 KUALA LUMPUR 2025

MATEMATIK TAMBAHAN

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	8	
3	5	
4	5	
5	5	
6	5	
7	3	
8	7	
9	4	
10	3	
11	7	
12	7	
BAHAGIAN B		
13	8	
14	8	
15	8	
JUMLAH	**80**	

Kertas soalan ini mengandungi 28 halaman bercetak.

RUMUS
FORMULAE

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

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

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

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

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

6 $\log_a \dfrac{m}{n} = \log_a m - \log_a n$

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

8 $\log_a b = \dfrac{\log_c b}{\log_c a}$

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

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

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

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

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

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

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

16 $\dfrac{dy}{dx} = \dfrac{dy}{du} \times \dfrac{du}{dx}$

17 Luas di bawah lengkung
Area under a curve

$= \int_a^b y \, dx$ atau (*or*) $\int_a^b x \, dy$

18 Isi padu kisaran
Volume of revolution

$= \int_a^b \pi y^2 \, dx$ atau (*or*) $\int_a^b \pi x^2 \, dy$

19 $I = \dfrac{Q_1}{Q_0} \times 100$

20 $\bar{I} = \dfrac{\sum W_i I_i}{\sum W_i}$

21 ${}^nP_r = \dfrac{n!}{(n-r)!}$

22 ${}^nC_r = \dfrac{n!}{(n-r)!r!}$

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

24 Min / *Mean* , $\mu = np$

25 $\sigma = \sqrt{npq}$

26 $Z = \dfrac{X - \mu}{\sigma}$

27 Panjang lengkok, $s = j\theta$
Arc length, $s = r\theta$

28 Luas sektor, $L = \dfrac{1}{2} j^2 \theta$

Area of sector, $A = \dfrac{1}{2} r^2 \theta$

29 $\sin^2 A + \text{kos}^2 A = 1$
$\sin^2 A + \cos^2 A = 1$

30 $\text{sek}^2 A = 1 + \tan^2 A$
$\sec^2 A = 1 + \tan^2 A$

31 $\text{kosek}^2 A = 1 + \text{kot}^2 A$
$\text{cosec}^2 A = 1 + \cot^2 A$

32 $\sin 2A = 2 \sin A \, k\text{os} A$
$\sin 2A = 2 \sin A \cos A$

33 $\text{kos } 2A = \text{kos}^2 A - \sin^2 A$
$= 2 \, \text{kos}^2 A - 1$
$= 1 - 2 \sin^2 A$

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

35 $\sin (A \pm B) = \sin A \, \text{kos} \, B \pm \text{kos} \, A \sin B$
$\sin (A \pm B) = \sin A \cos B \pm \cos A \sin B$

36 $\text{kos} (A \pm B) = \text{kos} \, A \, \text{kos} \, B \mp \sin A \sin B$
$\cos (A \pm B) = \cos A \cos B \mp \sin A \sin B$

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 $a^2 = b^2 + c^2 - 2bc \, \text{kos} \, A$
$a^2 = b^2 + c^2 - 2bc \cos A$

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

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)**

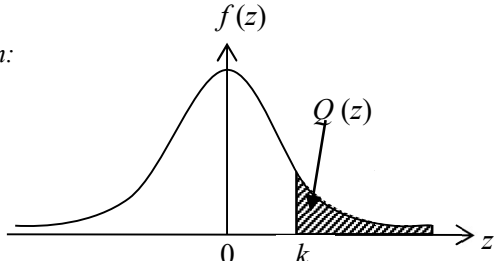
z	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
											Minus / *Tolak*								
0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641	4	8	12	16	20	24	28	32	36
0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247	4	8	12	16	20	24	28	32	36
0.2	.4207	.4168	.4219	.4090	.4052	.4013	.3974	.3936	.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
				.$0^2$990	.$0^2$964	.$0^2$939	.$0^2$914				3	5	8	10	13	15	18	20	23
								.$0^2$889	.$0^2$866	.$0^2$842	2	5	7	9	12	14	16	16	21
2.4	.$0^2$820	.$0^2$798	.$0^2$776	.$0^2$755	.$0^2$734						2	4	6	8	11	13	15	17	19
						.$0^2$714	.$0^2$695	.$0^2$676	.$0^2$657	.$0^2$639	2	4	6	7	9	11	13	15	17
2.5	.$0^2$621	.$0^2$604	.$0^2$587	.$0^2$570	.$0^2$554	.$0^2$539	.$0^2$523	.$0^2$508	.$0^2$494	.$0^2$480	2	3	5	6	8	9	11	12	14
2.6	.$0^2$466	.$0^2$453	.$0^2$440	.$0^2$427	.$0^2$415	.$0^2$402	.$0^2$391	.$0^2$379	.$0^2$368	.$0^2$357	1	2	3	5	6	7	9	9	10
2.7	.$0^2$347	.$0^2$336	.$0^2$326	.$0^2$317	.$0^2$307	.$0^2$298	.$0^2$289	.$0^2$280	.$0^2$272	.$0^2$264	1	2	3	4	5	6	7	8	9
2.8	.$0^2$256	.$0^2$248	.$0^2$240	.$0^2$233	.$0^2$226	.$0^2$219	.$0^2$212	.$0^2$205	.$0^2$199	.$0^2$193	1	1	2	3	4	4	5	6	6
2.9	.$0^2$187	.$0^2$181	.$0^2$175	.$0^2$169	.$0^2$164	.$0^2$159	.$0^2$154	.$0^2$149	.$0^2$144	.$0^2$139	0	1	1	2	2	3	3	4	4
3.0	.$0^2$135	.$0^2$131	.$0^2$126	.$0^2$122	.$0^2$118	.$0^2$114	.$0^2$111	.$0^2$107	.$0^2$104	.$0^2$100	0	1	1	2	2	2	3	3	4

For negative z use relation
Bagi z negatif guna hubungan:

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

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

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



Example / *Contoh*:
If $X \sim$ N(0, 1), then
Jika $X \sim$ N(0, 1), *maka*
$P(X > k) = Q(k)$
$P(X > 2.1) = Q(2.1) = 0.0179$

BAHAGIAN A

Jawab **semua** soalan
*Answer **all** question*

[64 markah/marks]

1. (a) Diberi bahawa $a^{3x-9y}=1$, ungkapkan x dalam sebutan y.
Given that $a^{3x-9y}=1$ *, express* x *in terms of* y .

[2 *markah*]
[2 *marks*]

(b) Diberi bahawa $9(3^{n-1})=27^{n}$, cari nilai n.
Given that $9(3^{n-1})=27^{n}$ *, find value of n.*

[3 *markah*]
[3 *marks*]

Jawapan / *Answer*:

2. (a) Diberi bahawa $f(x) = 2x - 5$ dan $g(x) = x^2 + 2$.

Given that $f(x) = 2x - 5$ *and* $g(x) = x^2 + 2$.

(i) Cari $g(5)$.

Find $g(5)$

[1 *markah*]
[1 *mark*]

(ii) Cari $f^{-1}(x)$.

Find $f^{-1}(x)$

[1 *markah*]
[1 *mark*]

` (ii) Cari $fg(x)$.

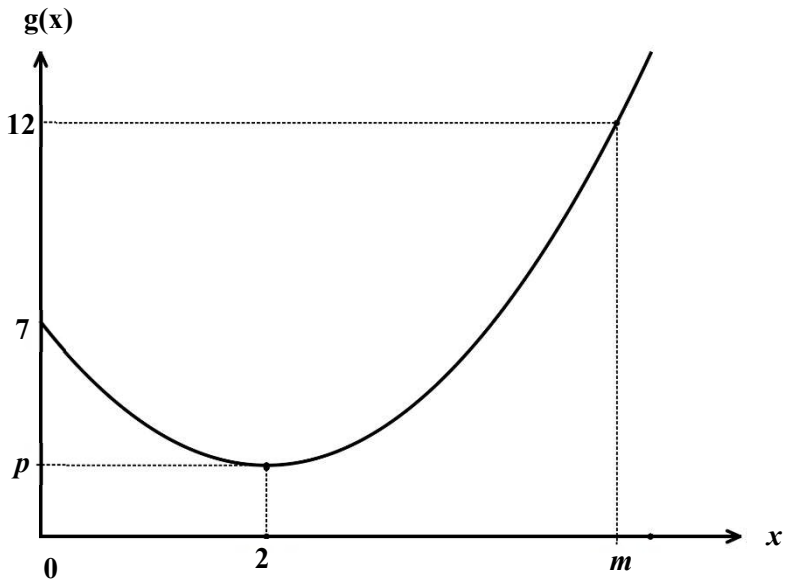
Find $fg(x)$.

[2 *markah*]
[2 *marks*]

Jawapan / *Answer*:

2. (b) Rajah 1 menunjukkan lengkung bagi fungsi $g(x) = (x-2)^2 + 3$ untuk domain $0 \le x \le m$.

Diagram 1 shows the curve of function $g(x) = (x-2)^2 + 3$ *for domain* $0 \le x \le m$.



Rajah 1/*Diagram 1*

(i) Nyatakan nilai *p*. [1 *markah*]
State the value of p. [*1 mark*]

(ii) Hitung nilai *m.* [2 *markah*]
Calculate value of m. [*2 marks*]

(iii) Seterusnya, nyatakan julat bagi fungsi g(x). [1 *markah*]
Hence, state the range for function g(x). [*1 mark*]

Jawapan / *Answer*:

3. (a) Diberi bahawa *q* dan *3q* ialah punca-punca bagi suatu persamaan kuadratik. Bentukkan satu persamaan kuadratik berdasarkan punca-punca yang diberi, dalam sebutan *q*.
Given that q and 3q are the roots for the quadratic equation. Form a quadratic equation by using given roots in terms of q.

[2 *markah*]
[2 *marks*]

` (b) Garis lurus $y = 2kx - m$ bersilang dengan $5 = 5x^2 - 2xy$ pada satu titik.
Ungkapkan *k* dalam sebutan *m*.
The straight line $y = 2kx - m$ *intersect with the curve* $5 = 5x^2 - 2xy$ *at one point.*
Express k in terms of m.

[3 *markah*]
[3 *marks*]

Jawapan / *Answer*:

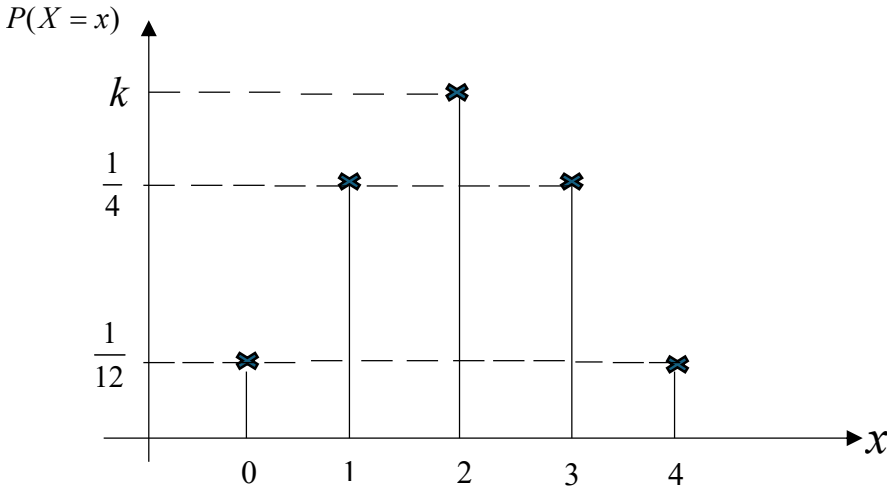
4. Selesaikan persamaan serentak berikut:
Solve the following simultaneous equation:

$$x + 3y = 12 \ , \quad y^2 - x^2 - 2xy = 8$$

[5 *markah*]
[5 *marks*]

Jawapan / *Answer*:

5. (a) Rajah 2 menunjukkan taburan kebarangkalian bagi *X*. Pemboleh ubah rawak diskret *X* mempunyai satu taburan kebarangkalian binomial dengan $n = 4$, dengan keadaan n ialah bilangan percubaan.
Diagram 2 shows the probability distribution of X. The discrete random variable X has a binomial probability distribution with $n = 4$, *where n is the number of trials.*



Rajah 2
Diagram 2

Cari nilai *k*.
Find the value of k.

[2 *markah*]
[2 *marks*]

(b) Satu pemboleh ubah rawak diskret *X* bertaburan binomial, $X \sim B(n, p)$ dengan min 48 dan sisihan piawai 4. Cari nilai n dan nilai p.
A discrete random variable X has a binomial distribution, which is $X \sim B(n, p)$ *with a mean of* 48 *and a standard deviation of* 4. *Find the value of n and of p.*

[3 *markah*]
[3 *marks*]

Jawapan / *Answer*:

6. (a) Buktikan identiti $\tan\theta + \cot\theta = \operatorname{cosec}\theta \sec\theta$.

Prove the identitiy $\tan\theta + \cot\theta = \operatorname{cosec}\theta \sec\theta$.

[2 *markah*]
[2 *marks*]

(b) Selesaikan persamaan $4\cos x - \sec x = 0$ untuk $0 \le x \le 2\pi$. Beri jawapan anda dalam bentuk π.

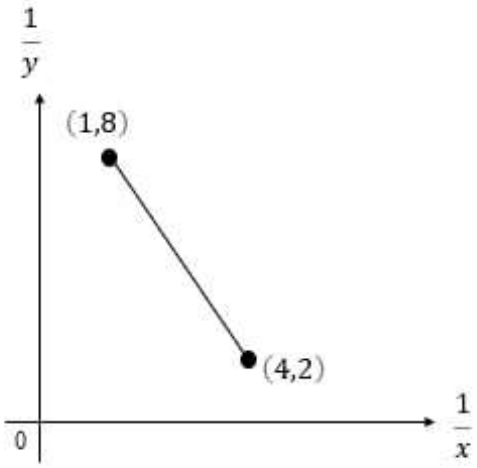
Solve the equation $4\cos x - \sec x = 0$ *for* $0 \le x \le 2\pi$. *Give your answer in terms of* π.

[3 *markah*]
[3 *marks*]

Jawapan / Answer:

7. Rajah 3 menunjukkan graf garis lurus yang dilukis untuk mewakili persamaan , $y = \dfrac{x}{px+q}$ dengan keadaan p dan q adalah pemalar.

Diagram 2 shows the grapf of a straight line graph drawn to represent the equation, $y = \dfrac{x}{px+q}$ *where p and q are constants.*



Rajah 3
Diagram 3

Cari nilai p dan nilai q. [3 *markah*]
Find the value of p and of q. [3 *marks*]

Jawapan / Answer:

8. (a) Diberi $y = 3x^2 - 4x + 5$. Terdapat perubahan kecil dalam *x* sebanyak 2.5% apabila $x = 3$. Cari perubahan kecil dalam *y* yang sepadan.

Given that $y = 3x^2 - 4x + 5$. *When* $x = 3$, *there is a small change in x by* 2.5%. *Find the corresponding small change in y.*

[4 *markah*]
[*4 marks*]

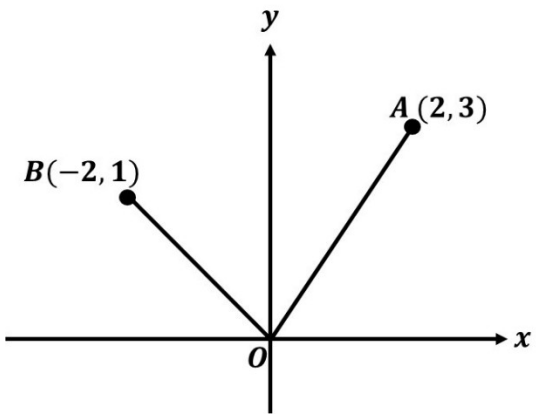
(b) Diberi bahawa $\int_2^8 g(x)\,dx = 12$ dan $\int_2^8 k(x)\,dx = 9$. Cari nilai *q jika* $\int_2^8 [qk(x) + g(x)]\,dx = 20$.

Given that $\int_2^8 g(x)\,dx = 12$ *and* $\int_2^8 k(x)\,dx = 9$. *Find the value of q if* $\int_2^8 [qk(x) + g(x)]dx = 20$.

[3 *markah*]
[*3 marks*]

Jawapan / *Answer*:

9. (a) Rajah 4 menunjukkan dua vektor $\overrightarrow{OA}$ dan $\overrightarrow{OB}$.
Diagram 4 *shows* two vectors *on* $\overrightarrow{OA}$ *and* $\overrightarrow{OB}$.



Rajah 4
Diagram 4

Ungkapkan $\overrightarrow{\text{AB}}$ dalam bentuk $xi + yj$
Express $\overrightarrow{\text{AB}}$ *in terms of* $xi + yj$

[2 *markah*]
[*2 marks*]

Jawapan / *Answer*:

9. (b) Diberi bahawa $\overrightarrow{MN} = 2\underset{\sim}{a} + h\underset{\sim}{b}$ adalah selari dengan $\overrightarrow{PQ} = 5\underset{\sim}{a} - \underset{\sim}{b}$.

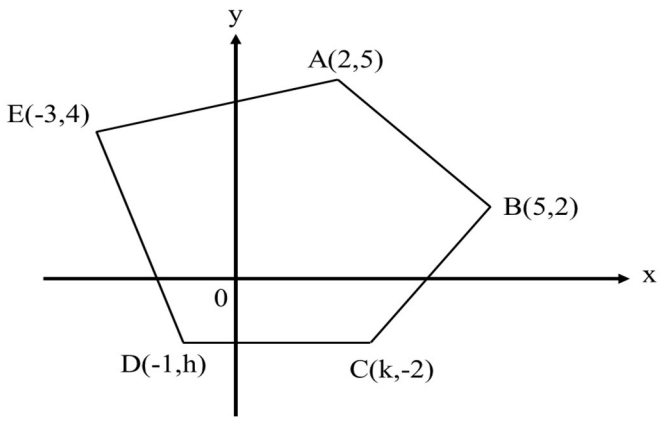
Given that $\overrightarrow{MN} = 2\underset{\sim}{a} + h\underset{\sim}{b}$ *is parallel to* $\overrightarrow{PQ} = 5\underset{\sim}{a} - \underset{\sim}{b}$

Cari nilai *h*.
Find the value of *h*.

[2 *markah*]
[2 *marks*]

Jawapan / *Answer*:

10. Rajah 5 menunjukkan poligon *ABCDE,* sebuah pentagon yang tidak sekata.
Diagram 5 shows polygon ABCDE, an irregular pentagon



Rajah 5
Diagram 5

Diberikan luas pentagon tidak sekata adalah $39\ unit^2$. Garis CD selari dengan paksi$-x$.
Given that the area of pentagon is $39\ unit^2$. *Line CD is parallel with x – axis.*

(a) Nyatakan nilai h. [1 *markah*]
State value of h. [1 *mark*]

(b) Seterusnya , cari nilai k. [2 *markah*]
hence, find the value of k. [2 *marks*]

Jawapan / *Answer*:

Penyelesaian menggunakan kaedah penyenaraian adalah tidak dibenarkan.
Solution using a listing method is not allowed.

11 (a) Rajah 6 menunjukkan 9 biji manik yang mengandungi huruf.
The diagram 6 shows 9 beads containing letters.

Rajah 6
Diagram 6

(i) Cari bilangan cara berlainan untuk menyusun semua manik dalam satu baris.
Find the number of different ways to arrange all the beads in a row.

(ii) Aminah menggunakan seutas tali untuk menyambung semua manik bagi membentuk seutas gelang tangan.
Berapakah bilangan susunan berlainan yang boleh dibentuk jika huruf *C*, *A* dan *M* disusun tidak boleh bersebelahan antara satu sama lain?
Aminah used a piece of string to connect all the beads to form a bracelet.
How many different arrangements can be formed if the letters C, A and M are arranged so that they cannot be next to each other?

[5 markah]
[5 *marks*]

Jawapan / *Answer*:

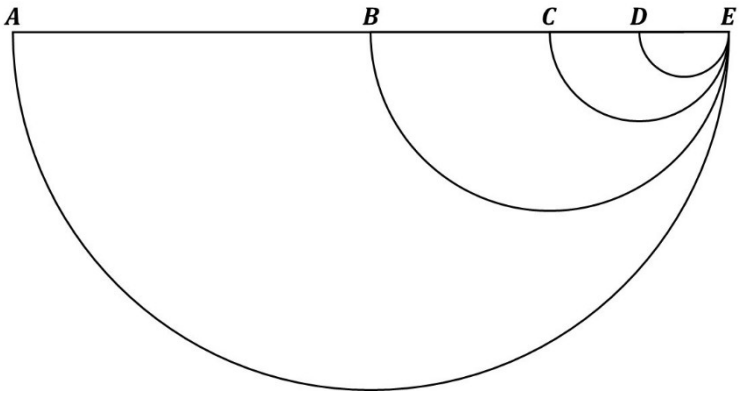
11 (b) Kelvin membeli sekotak pemadam yang mengandungi p buah pemadam yang berlainan corak.
Diberi bahawa bilangan cara berlainan bagi Kelvin memilih 3 buah pemadam daripada kotak itu ialah $\frac{91}{3}(p-2)$, cari nilai p.

Kelvin bought a box of eraser that contain p different pattern of erasers.
Given that the number of different ways for Kelvin to choose 3 *pencils from the box is* $\frac{91}{3}(p-2)$, *find the value of p.*

[2 markah]
[2 *marks*]

Jawapan / *Answer*:

12. Rajah 7 menunjukkan empat semibulatan yang semakin mengecil. Setiap semibulatan tersebut bertindan antara satu sama lain di E. B ialah titik tengah AE, C ialah titik tengah BE, dan D ialah titik tengah CE.
Diagram 7 shows four decreasing semicircles touching each other on the inside at E. B is the midpoint of AE, C is the midpoint of BE, and D is the midpoint of CE.



Rajah 7/ *Diagram* 7

(a) Tunjukkan bahawa luas semibulatan berpusat B, *C* dan D membentuk suatu Janjang Geometri.
Show that the area of a semicircle centered at B, C and D forms a Geometric Progression.

[3 *markah*]
[3 *marks*]

(b) Nyatakan nisbah sepunya. [1 *markah*]
State common ratio. [1 *mark*]

(c) Seterusnya , hitung hasil tambah luas enam semibulatan dalam sebutan πj.
Hence, calculate the sum of area of six semicircle in terms of πj.

[3 *markah*]
[3 *marks*]

Jawapan / *Answer*:

Bahagian B
[16 markah]
Jawab mana-mana **dua** soalan daripada bahagian ini.

13. (a)

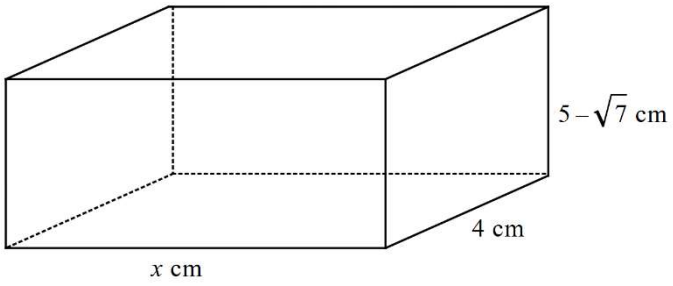
Ali sedang menyelesaikan satu teka-teki matematik. Dia menjumpai satu nota misteri yang menyatakan:
"Untuk membuka kotak khazanah, kamu mesti menyelesaikan teka-teki ini: Logaritma asas lima bagi hasil tambah suatu nombor dengan satu adalah sama dengan empat per tiga tambah logaritma asas satu ratus dua puluh lima bagi hasil tambah nombor yang sama dengan satu."
Apakah nombor yang mungkin digunakan oleh Ali untuk membuka khazanah itu?

Ali is solving a math puzzle. He finds a mysterious note that says:
"To unlock the treasure box, you must solve this riddle: The logarithm base five of the sum of a number with one is equal to four-thirds plus the logarithm base one hundred twenty-five of the sum of that number with one."
What is the possible number should Ali use to unlock the treasure

[4 *markah*]
[4 *marks*]

Jawapan / *Answer*:

13. (b) Aiman ingin menghasilkan sebuah bekas lutsinar berbentuk kuboid untuk sebuah model rumah tradisional yang baru dibelinya. Ukuran bekas tersebut adalah seperti di Rajah 8.
Aiman wants to produce a transparent cuboid container for a model of the traditional's house that he has just bought. The dimensions of the container are as shown in Diagram 8.



Rajah 8
Diagram 8

Jika isipadu bagi bekas tersebut adalah $52\sqrt{7}-44$, cari nilai x dalam sebutan $a+\sqrt{b}$.
If the volume of the container is $52\sqrt{7}-44$*, find the value of* x *in terms of* $a+\sqrt{b}$

[4 *Markah*]
[4 *marks*]

Jawapan / *Answer*:

14. Diberi suatu persamaan lengkung ialah $y = 2x^3 - 15x^2 + 24x + 6$.

Given the equation of a curve is $y = 2x^3 - 15x^2 + 24x + 6$

Cari
find

a) fungsi kecerunan bagi lengkung itu. [1 *markah*]
Find the gradient function of the curve. [1 *mark*]

b) titik-titik pusingan bagi lengkung itu. [4 *markah*]
turning points of curve. [4 *marks*]

c) Seterusnya, tentukan sama ada setiap titik pusingan itu maksimum atau minimum.
Hence, determine whether each of the turning points is a maximum or a minimum.
[3 *markah*]
[3 *marks*]

Jawapan / *Answer*:

15. Diberi $fg(x) = \frac{3}{2x-3},\ x \neq k$ dan $f(x) = \frac{3}{-2x+9}, x \neq \frac{9}{2}$.

Given $fg(x) = \frac{3}{2x-3}, x \neq k$ *and* $f(x) = \frac{3}{-2x+9}, x \neq \frac{9}{2}$.

a) Cari nilai *k.* [1 *Markah*]
Find value of k . [1 *Mark*]

b) Cari $g(x)$. [2 *Markah*]
Find $g(x)$ [*2 Marks*]

c) (i)Seterusnya, cari nilai *x* sekiranya $g(x)$ memetakan kepada dirinya sendiri.
Hence, find value of x if $g(x)$ *map onto itself* [2 *Markah*]
[*2 Marks*]

(ii) Cari $g^{2n+6}(x)$
Find $g^{2n+6}(x)$ [3 *Markah*]
[*3 marks*]

Jawapan/answer:

SOALAN TAMAT