

Matematik  
Tambahan  
Kertas 1  
Ogos / Sept  
2010  
2 jam

Nama Pelajar : .....

Tingkatan : .....



JABATAN PELAJARAN KELANTAN  
DENGAN KERJASAMA  
PERSIDANGAN KEBANGSAAN PENGETUA-PENGETUA  
SEKOLAH MENENGAH MALAYSIA  
CAWANGAN KELANTAN

PEPERIKSAAN  
PERCUBAAN SPM  
TINGKATAN 5 ( 2010 )

MATEMATIK TAMBAHAN  
KERTAS 1

Masa : Dua Jam

JANGAN BUKA KERTAS SOALAN INI  
SEHINGGA DIBERITAHU

Arahan:

1. *Tuliskan nama dan tingkatan anda pada ruangan yang disediakan.*
2. *Kertas soalan ini adalah dalam dwibahasa.*
3. *Soalan bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*
4. *Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Inggeris atau bahasa Melayu.*
5. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.*

Soalan	Markah Penuh	Markah Diperolehi
1	2	
2	3	
3	4	
4	2	
5	3	
6	4	
7	3	
8	3	
9	2	
10	3	
11	4	
12	4	
13	3	
14	3	
15	2	
16	4	
17	3	
18	4	
19	3	
20	3	
21	4	
22	3	
23	4	
24	3	
25	4	
<b>Jumlah</b>	<b>80</b>	

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

## ALGEBRA

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

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

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

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

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

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

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

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

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

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

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

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

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

## 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 Area under a curve

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

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

5 Volume generated

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

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

## GEOMETRY

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

2 Midpoint

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

$$3 \quad |r| = \sqrt{x^2 + y^2}$$

$$4 \quad \hat{r} = \frac{xi + yj}{\sqrt{x^2 + y^2}}$$

5 A point dividing a segment of a line

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

6 Area of triangle

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

## STATISTIC

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

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

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

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

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

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

$$7 \quad \bar{j} = \frac{\sum w_j I_j}{\sum w_j}$$

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

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

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

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

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

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

$$14 \quad z = \frac{x - \mu}{\sigma}$$

## TRIGONOMETRY

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

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

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

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

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

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

$$7 \quad \cos 2A = \cos^2 A - \sin^2 A$$

$$= 2 \cos^2 A - 1$$

$$= 1 - 2 \sin^2 A$$

$$8 \quad \tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

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

$$10 \quad \cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$$

$$11 \quad \tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

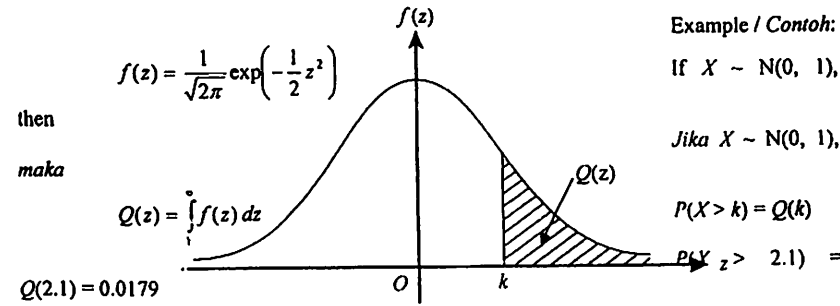
$$12 \quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

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



Answer all questions.

Jawab semua soalan.

1 The following information refer to the set A and set B.

Maklumat berikut adalah berkaitan dengan Set A dan Set B.

$$\text{Set } A = \{-3, -2, 2, 3\}$$

$$\text{Set } B = \{4, 9\}$$

The relations between set A and set B is defined by the set of ordered pairs  $\{(-3,9) (-2,4) (2,4) (3,9)\}$ .

Hubungan antara set A dan set B ditakrifkan oleh set pasangan bertertib  $\{(-3,9) (-2,4) (2,4) (3,9)\}$ .

(a) State the type of relations.

Nyatakan jenis hubungan.

(b) Using the functions notation, write a relation between set A and set B.

Dengan menggunakan tatatanda fungsi, tulis satu hubungan antara set A dan set B.

[ 2 marks ]

[ 2 markah ]

Answer / Jawapan ( a ).....

( b ).....

1

2

○

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- 2 Given that the functions  $f : x \rightarrow 2x + 6$  and  $f^{-1} : x \rightarrow kx + p$ , where  $k$  and  $p$  are constants, find the value of  $k$  and of  $p$ . [ 3 marks ]
- Diberi fungsi  $f : x \rightarrow 2x + 6$  dan  $f^{-1} : x \rightarrow kx + p$ , dengan keadaan  $k$  dan  $p$  pemalar. cari nilai  $k$  dan nilai  $p$ . [ 3 markah ]

Answer / Jawapan:  $k = \dots\dots\dots$   
 $p = \dots\dots\dots$

- 3 Given the functions  $f : x \rightarrow x + 4$  and  $fg : x \rightarrow 2x - 3$ , find

Diberi fungsi  $f : x \rightarrow x + 4$  dan  $fg : x \rightarrow 2x - 3$ , cari

(a)  $g(x)$

(b) the value of  $x$  when  $g(f(x)) = 5$ .

nilai  $x$  apabila  $g(f(x)) = 5$ .

[ 4 marks ]

[ 4 markah ]

Answer / Jawapan: (a)  $\dots\dots\dots$   
 (b)  $\dots\dots\dots$

Answer / Jawapan:  $\dots\dots\dots$

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5 Diagram 5 shows the graph of a quadratic functions  $f(x) = 3(x + p)^2 + 5$ , where  $p$  is a constant.

Rajah 5 menunjukkan graf kuadratik  $f(x) = 3(x + p)^2 + 5$ , dengan keadaan  $p$  ialah pemalar.

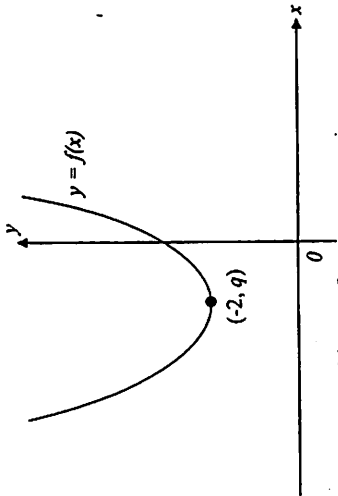


Diagram 5

Rajah 5

The curve  $y = f(x)$  has the minimum point  $(-2, q)$  where  $q$  is a constant.

Lengkung  $y = f(x)$  mempunyai titik minimum  $(-2, q)$  dengan keadaan  $q$  ialah pemalar.

State

Nyatakan

(a) the value of  $p$ .

nilai  $p$ .

(b) the value of  $q$ .

nilai  $q$ .

(c) the equation of the axis of symmetry.

*persamaan paksi simetri.*

[ 3 marks ]

[ 3 markah ]

Answer / Jawapan: (a)  $p =$  .....

(b)  $q =$  .....

(c) .....

5

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6



[ 4 marks ]

[ 4 markah ]

6 Find the range of values of  $x$  for which  $(x - 3)(2x + 1) > x^2 - 9$ .

Cari julat nilai  $x$  bagi  $(x - 3)(2x + 1) > x^2 - 9$

Answer / Jawapan: .....

[ 3 marks ]

[ 3 markah ]

7 Solve the equation  $3^{x+2} - 3^{x+1} = 54$

Selesaikan persamaan  $3^{x+2} - 3^{x+1} = 54$

Answer / Jawapan: .....

7



8

3
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( 10 )

3472/1

8 Given that  $\log_3 x = h$  and  $\log_3 y = k$ , express  $\log_3 \frac{81x}{y}$  in term of  $h$  and  $k$ . [ 3 marks ]

Diberi  $\log_3 x = h$  dan  $\log_3 y = k$ , ungkapkan  $\log_3 \frac{81x}{y}$  dalam sebutan  $h$  dan  $k$ . [ 3 markah ]

Answer / Jawapan: .....

9 Given a geometric progression  $3, 2m, p, \dots$ , express  $p$  in terms of  $m$ . [ 2 marks ]

Diberi suatu jantung geometri  $3, 2m, p, \dots$ , ungkapkan  $p$  dalam sebutan  $m$ . [ 2 markah ]

9

2
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Answer / Jawapan: .....

**SULIT**

( 11 )

3472/1

10 The first term of an arithmetic progression is 5 and the sum of the first eight term of the progression is 208.

Sebutan pertama bagi suatu jantung aritmetik ialah 5 dan hasil tambah bagi lapan sebutan pertama bagi jantung itu ialah 208.

Find

Cari

(a) the common difference,  
beza sepunya,

(b) the tenth term of the progression,  
sebutan kesepuluh jantung tersebut.

[ 3 marks ]

[ 3 markah ]

10

3
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Answer / Jawapan: (a).....

(b).....

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12 The variables  $x$  and  $y$  are related by the equation  $y = \frac{x}{p + qx}$ , where  $p$  and  $q$  are constants. Diagram 12 shows the straight line graph obtained by plotting  $\frac{1}{y}$  against  $\frac{1}{x}$ .

*Pembolehlah  $x$  dan  $y$  dihubungkan oleh persamaan  $y = \frac{x}{p + qx}$ , dengan  $p$  dan  $q$  ialah pemalar. Rajah 12 menunjukkan graf garis lurus yang diperolehi dengan memplot  $\frac{1}{y}$  melawan  $\frac{1}{x}$ .*

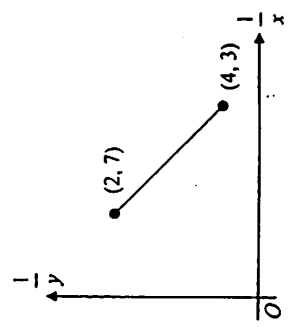


Diagram 12  
Rajah 12

11 The third term of a geometric progression is 24. The sum of the third term and the fourth term is 36.

*Sebutan ketiga suatu jajjang geometri ialah 24. Hasil tambah sebutan ketiga dan sebutan keempat ialah 36.*

Find  
*Cari*

(a) the first term and the common ratio of the progression,  
*sebutan pertama dan nisbah sepunya jajjang itu.*

(b) the sum to infinity of the progression.  
*hasil tambah hingga ketakterhinggaan jajjang itu.*

[ 4 marks ]

[ 4 markah ]

(a) Express the equation  $y = \frac{x}{p + qx}$  in its linear form used to obtain the straight line graph shown in Diagram 12

*Ungkapkan persamaan  $y = \frac{x}{p + qx}$  dalam bentuk linear yang digunakan untuk memperoleh graf garis lurus seperti ditunjukkan dalam Rajah 12.*

(b) Find the value of  $p$  and of  $q$ .  
*Cari nilai  $p$  dan nilai  $q$ .*

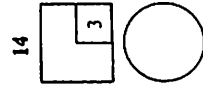
[ 4 marks ]

[ 4 markah ]

Answer / Jawapan: (a) .....  
(b).....

Answer / Jawapan: (a) .....  
(b)  $p =$  .....  
 $q =$  .....

For  
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use only



- 14 Diagram 14 shows a circle with centre  $O$  and radius  $6\text{ cm}$ .  
*Rajah 14 menunjukkan bulatan berpusat  $O$  dan berjari  $6\text{ cm}$ .*

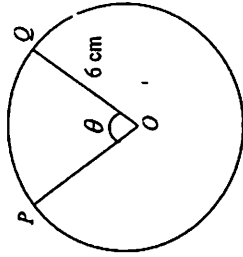


Diagram 14  
*Rajah 14*

Given the length of the major arc  $PQ$  is  $33\text{ cm}$ , find the value of  $\theta$ , in radians.  
*Diberi panjang lengkok major  $PQ$  ialah  $33\text{ cm}$ , cari nilai sudut  $\theta$ , dalam radian.*

[Use / Guna  $\pi = 3.142$ ]

[ 3 marks ]

[ 3 markah ]

Answer / Jawapan : .....

For  
examiner's  
use only

- 13 The points  $P(k, 2h)$ ,  $Q(3k, 4h)$  and  $R(6h, \frac{10}{3}k)$  are on a straight line.  
 Point  $Q$  divides  $PR$  internally in the ratio  $2 : 1$ . Express  $h$  in terms of  $k$ .

[ 3 marks ]

*Titik-titik  $P(k, 2h)$ ,  $Q(3k, 4h)$  dan  $R(6h, \frac{10}{3}k)$  terletak pada garis lurus.*

*Titik  $Q$  membahagi dalam  $PR$  dengan nisbah  $2 : 1$ . Ungkapkan  $h$  dalam sebutan  $k$ .*

[ 3 markah ]

Answer / Jawapan :  $h =$  .....





For  
examiner's  
use only

15 It is given that  $\underline{u} = \begin{pmatrix} 12 \\ 4 \end{pmatrix}$  and  $\underline{v} = \begin{pmatrix} 6 \\ k-1 \end{pmatrix}$ . Find the value of  $k$  when  $\underline{u}$  and  $\underline{v}$  are parallel.

[ 2 marks ]

Diberi  $\underline{u} = \begin{pmatrix} 12 \\ 4 \end{pmatrix}$  dan  $\underline{v} = \begin{pmatrix} 6 \\ k-1 \end{pmatrix}$ . Cari nilai  $k$  apabila  $\underline{u}$  dan  $\underline{v}$  adalah selari.

[ 2 markah ]

15

2
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Answer / Jawapan: .....

For  
examiner's  
use only

17 Given  $\sin \theta = k$ , where  $k$  is a constant and  $90^\circ \leq \theta \leq 180^\circ$   
Diberi  $\sin \theta = k$ , dengan keadaan  $k$  ialah pemalar dan  $90^\circ \leq \theta \leq 180^\circ$   
Find in terms of  $k$   
Cari dalam sebutan  $k$

- (a)  $\tan \theta$ ,
- (b)  $\sin 2\theta$ .

[ 3 marks ]  
[ 3 markah ]

17

3
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Answer / Jawapan: (a) .....

(b) .....

18 Solve the equation  $\sin A + 2 \cos^2 A = 1$  for  $0^\circ \leq A \leq 360^\circ$ .

[ 4 marks ]

Selesaikan persamaan  $\sin A + 2 \cos^2 A = 1$  bagi  $0^\circ \leq A \leq 360^\circ$ .

Find

Cari

(a)  $\overline{OB}$ ,

(b) Unit vector in the direction of  $\overline{OB}$ .

Vektor unit dalam arah  $\overline{OB}$ .

[ 4 marks ]

[ 4 markah ]

Answer / Jawapan: (a) .....

(b) .....

18

4
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Answer / Jawapan: .....

For  
examiner's  
use only

- 19 The curve  $y = 7 + 18px - 2x^2$  has a maximum point at  $x = 3$ , where  $p$  is a constant.  
Find the value of  $p$ . [ 3 marks ]  
*Lengkung  $y = 7 + 18px - 2x^2$  mempunyai titik maksimum di  $x = 3$ , dengan keadaan  $p$  ialah pemalar. Cari nilai  $p$ . [ 3 markah ]*

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- 20 Two variables,  $x$  and  $y$ , are related by the equation  $y = 4x(x + 1)$ .  
Express, in terms of  $h$ , the approximate change in  $y$ , when  $x$  change from 3 to  $3 + h$ , where  $h$  is a small value. [ 3 marks ]  
*Dua pemboleh ubah,  $x$  dan  $y$ , dihubungkan oleh persamaan  $y = 4x(x + 1)$ . Ungkapkan, dalam sebutan  $h$ , perubahan kecil bagi  $y$ , apabila  $x$  berubah daripada 3 kepada  $3 + h$ , dengan keadaan  $h$  ialah satu nilai kecil. [ 3 markah ]*

3
---

Answer / Jawapan: .....

- 21 Given that  $\int_1^6 g(x)dx = 4$ , find

Diberi  $\int_1^6 g(x)dx = 4$ , cari

(a)  $\int_1^6 g(x)dx + 8$ ,

(b)  $\int_1^6 [2g(x) - 3]dx$ .

[ 4 marks ]  
[ 4 markah ]

4
---

Answer / Jawapan: (a).....

(b).....



22 The mean of 5 numbers is  $\sqrt{20}$ . The sum of the squares of the numbers is 25k and the standard deviation is p.  
Express k in the terms of p.  
[ 3 marks ]

Min bagi 5 nombor ialah  $\sqrt{20}$ . Hasil tambah kuasa dua nombor-nombor itu ialah 25k dan sisihan piawaiinya ialah p.  
Ungkapkan k dalam bentuk p.  
[ 3 markah ]

Answer / Jawapan: .....

3



23 A club committee consists of 8 students. The committee is chosen from 5 prefects, 4 librarians and 3 monitors.  
Satu jawatankuasa kelab terdiri daripada 8 orang pelajar. Jawatankuasa itu dipilih daripada 5 pengawas, 4 pustakawan dan 3 ketua darjah.

Calculate the number of different ways the committee can be chosen if  
Hitung bilangan cara yang berlainan jawatankuasa itu boleh dipilih jika

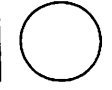
(a) there is no restriction,  
tiada syarat dikenakan,

(b) the committee contains all prefects and only 2 monitors.  
jawatankuasa mengandungi semua pengawas dan hanya 2 ketua darjah.

[ 4 marks ]

[ 4 markah ]

4



Answer/Jawapan: (a) .....

(b) .....

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use only

- 24 Table 24 shows the number of coloured marbles in a box.  
 Jadual 24 menunjukkan bilangan guli berwarna di dalam sebuah kotak.

Colour Warna	Number of marbles Bilangan guli
Blue Biru	2
Green Hijau	3
Red Merah	4

Table 24  
 Jadual 24

Two marbles are drawn at random from the box.  
 Find the probability that both marbles are of the same colour.

Dua biji guli dikeluarkan secara rawak daripada kotak itu.  
 Cari kebarangkalian bahawa kedua-dua biji guli itu sama warna.

[ 3 marks ]  
 [ 3 markah ]

Answer / Jawapan: .....

For  
examiner's  
use only

- 25 Diagram 25 shows a standard normal distribution graph.  
 Rajah 25 menunjukkan satu graf taburan normal piawai.

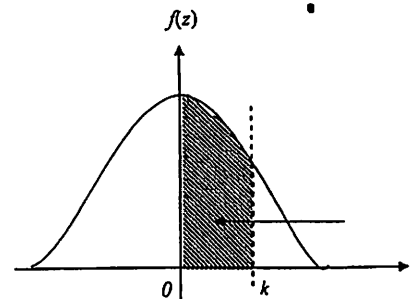


Diagram 25  
 Rajah 25

- (a) Given that  $P(0 < z < k) = 0.2764$ , find the value of  $k$ .  
 Diberi  $P(0 < z < k) = 0.2764$ , cari nilai  $k$ .
- (b)  $X$  is a continuous random variable which is normally distributed with a mean  $\mu$  and a variance 4. Find the value of  $\mu$  when the value of  $X = 50.9$  is correspond to the value of  $k$ .  
 $X$  ialah pembolehubah rawak selanjur yang bertaburan secara normal dengan nilai  $\mu$  dan varians 4. Cari nilai  $\mu$  apabila nilai  $X = 50.9$  adalah sepadan dengan nilai  $k$ .

[ 4 marks ]  
 [ 4 markah ]

Answer / Jawapan: (a).....

(b).....



INFORMATION FOR CANDIDATES  
MAKLUMAT UNTUK CALON

1. This question paper consists of 25 questions.  
*Kertas soalan ini mengandungi 25 soalan.*
2. Answer all questions.  
*Jawab semua soalan.*
3. Write your answers in the spaces provided in the question paper.  
*Tulis jawapan anda dalam ruang yang disediakan dalam kertas soalan.*
4. Show your working. It may help you to get marks.  
*Tunjukkan langkah-langkah penting dalam kerja mengira anda. Ini boleh membantu anda untuk mendapatkan markah.*
5. If you wish to change your answer, cross out the answer that you have done. Then write down the new answer.  
*Sekiranya anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baru.*
6. The diagrams in the questions provided are not drawn to scale unless stated.  
*Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
7. The marks allocated for each question are shown in brackets.  
*Markah yang diperuntukkan bagi setiap soalan ditunjukkan dalam kurungan.*
8. A list of formulae is provided on pages 2 & 3 and the normal distribution  $N(0, 1)$  on page 4.  
*Satu senarai rumus disediakan di halaman 2 & 3 dan jadual taburan normal  $N(0, 1)$  di halaman 4.*
9. You may use a non-programmable scientific calculator.  
*Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.*
10. Hand in this question paper to the invigilator at the end of the examination.  
*Serahkan kertas soalan ini kepada pengawas peperiksaan di akhir peperiksaan.*