

SULIT
3472/1
Matematik
Tambahan
Kertas 1
September
2011
2 jam

Nama :

Tingkatan :



**MAJLIS PENGETUA SEKOLAH - SEKOLAH MALAYSIA (MPSM)
CAWANGAN KELANTAN**

**PEPERIKSAAN PERCUBAAN SPM
TINGKATAN LIMA
2011**

MATEMATIK TAMBAHAN

KERTAS 1

Masa : 2 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 dwi bahasa.*
3. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Malaysia.*
4. *Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Inggeris atau bahasa Malaysia.*
5. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.*

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

Kertas soalan ini mengandungi 21 halaman bercetak.

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SULIT

[Lihat halaman sebelah
MATE TAMBAHAN (1) TING 5 PERCUBAAN SPM 2011

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

ALGEBRA

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

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

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

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

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

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

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

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

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

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

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

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

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

CALCULUS

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

4 Area under a curve

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

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

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

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

5 Volume generated

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

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

GEOMETRY

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

5 A point dividing a segment of a line

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

2 Midpoint

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

6 Area of triangle

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

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

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

STATISTIC

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

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

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

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

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

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

$$7 \quad \bar{I} = \frac{\sum w_1 I_1}{\sum w_1}$$

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

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

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

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

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

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

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

TRIGONOMETRY

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

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

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

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

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

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

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

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

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

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

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

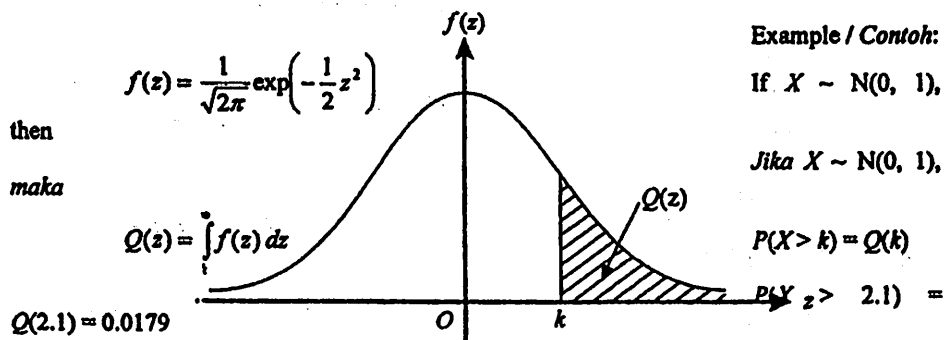
$$12 \quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

**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										Minus / Tolak											
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9		
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		0.00990	0.00964	0.00939	0.00914			0	1	1	1	1	2	2	2	2		
									0.00889	0.00866	0.00842	2	5	7	9	12	14	16	18	20	23
2.4	0.00820	0.00798	0.00776	0.00755	0.00734				0.00889	0.00866	0.00842	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.

For
Examiner's
Use

- 1 Diagram 1 shows the function f .
Rajah 1 menunjukkan fungsi f .

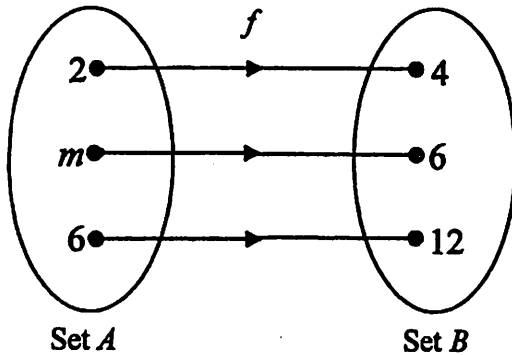


Diagram 1
Rajah 1

- (a) State the codomain of the function f .
Nyatakan kodomain untuk fungsi f .

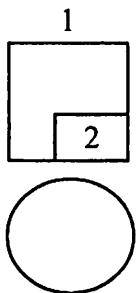
- (b) Determine the value of m .
Tentukan nilai m .

[2 marks]
[2 markah]

Answer / Jawapan :

(a)

(b)



For
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Use

- 2 The following information is about the function g and the composite function g^2 .
Maklumat berikut adalah berkaitan dengan fungsi g dan fungsi gubahan g^2 .

$$g : x \rightarrow 2x + k,$$

$$g^2 : x \rightarrow hx - 9,$$

where h and k are constants .

dengan keadaan h dan k ialah pemalar.

Find the value of h and of k .

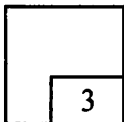
Cari nilai h dan nilai k .

[3 marks]

[3 markah]

Answer / Jawapan:

2



- 3 Given the functions $f : x \rightarrow 2x + 1$ and $g : x \rightarrow 3 - 4x$, find

Diberi fungsi $f : x \rightarrow 2x + 1$ dan $g : x \rightarrow 3 - 4x$, cari

(a) $f^{-1}(x)$,

(b) the value of m such that $gf^{-1}(m) = 7 - m$.

nilai m dengan keadaan $gf^{-1}(m) = 7 - m$.

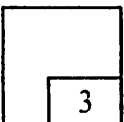
[3 marks]

[3 markah]

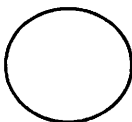
Answer / Jawapan:

(a)

3



(b)



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- 4 Given 3 and $2h$ are the roots of the quadratic equation $x^2 - 4x + k = 0$, where h and k are constants. Find the value of h and of k .

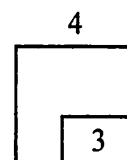
[3 marks]

Diberi 3 dan $2h$ ialah punca-punca persamaan kuadratik $x^2 - 4x + k = 0$, dengan keadaan h dan k adalah pemalar. Cari nilai h dan nilai k .

[3 markah]

Answer / Jawapan:

For
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Use

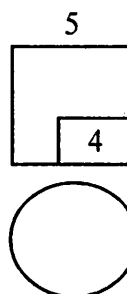


- 5 Find the range of values of x for which $(x - 2)^2 > 8 - x$.
Cari julat nilai x bagi $(x - 2)^2 > 8 - x$.

[4 marks]

[4 markah]

Answer / Jawapan:



For
Examiner's
Use

- 6 Diagram 6 shows the graph of quadratic function $f(x) = (x - k)^2 + r$, where k and r are constants.

Rajah 6 menunjukkan graf fungsi kuadratik $f(x) = (x - k)^2 + r$, dengan keadaan k dan r adalah pemalar.

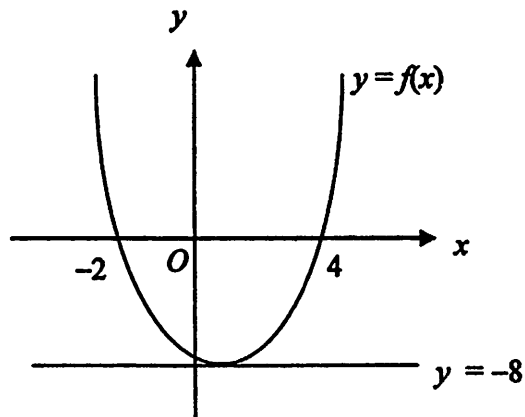


Diagram 6
Rajah 6

State
Nyatakan

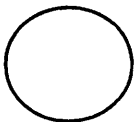
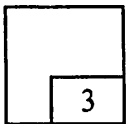
- the value of k ,
nilai k ,
- the value of r ,
nilai r ,
- the equation of axis of symmetry.
persamaan bagi paksi simetri.

[3 marks]
[3 markah]

Answer / Jawapan:

-
-
-

6



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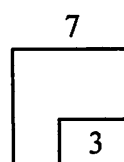
- 7 Solve the equation:
Selesaikan persamaan:

$$2^x (8) = \frac{1}{32^{x-3}}$$

[3 marks]
[3 markah]

Answer / Jawapan:

For
Examiner's
Use



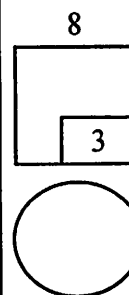
- 8 Given $\log_m 4 = p$ and $\log_m 3 = t$. Express $\log_m \left(\frac{64}{3m}\right)$ in terms of p and t .

[3 marks]

Diberi $\log_m 4 = p$ dan $\log_m 3 = t$. Ungkapkan $\log_m \left(\frac{64}{3m}\right)$ dalam sebutan p dan t .

[3 markah]

Answer / Jawapan:



For
Examiner's
Use

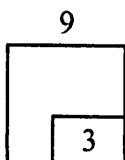
- 9 The first three terms of an arithmetic progression are -3, 4, 11. Find the greatest number of terms for the progression that is less than 43.

[3 marks]

Tiga sebutan pertama bagi jangjang aritmetik ialah -3, 4, 11. Cari bilangan sebutan terbesar jangjang ini yang kurang daripada 43.

[3 markah]

Answer / Jawapan:



- 10 The first three terms of an arithmetic progression are $3k$, $k+4$, 11.

Tiga sebutan pertama suatu jangjang aritmetik ialah $3k$, $k+4$, 11.

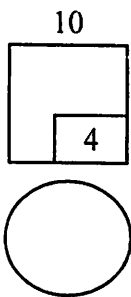
Find
Cari

- (a) the value of k .
nilai bagi k .
- (b) the sum of the first 8 terms of the progression.
hasil tambah bagi 8 sebutan pertama bagi jangjang itu.

[4 marks]

[4 markah]

Answer / Jawapan:



(a)

(b)

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11 In a geometric progression, the first term is 8 and the sixth term is $\frac{1}{4}$.

Dalam suatu jangjang geometri, sebutan pertama ialah 8 dan sebutan keenam ialah $\frac{1}{4}$.

Find

Cari

- (a) the common ratio of the progression,
nisbah sepunya jangjang itu,
- (b) the sum to infinity of the progression.
hasil tambah hingga ketakterhinggaan jangjang itu.

[4 marks]

[4 markah]

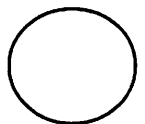
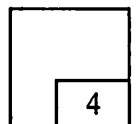
Answer / Jawapan :

(a)

(b)

For
Examiner's
Use

11



For
Examiner's
Use

- 12 The variables x and y are related by the equation $y = 100p^x$, where p is a constant. Diagram 12 shows the straight graph obtained by plotting $\log_{10} y$ against x .

Pembolehubah x dan y dihubungkan oleh persamaan $y = 100p^x$, dengan keadaan p ialah pemalar.

Rajah 12 menunjukkan graf garis lurus yang diperolehi dengan memplot $\log_{10} y$ melawan x .

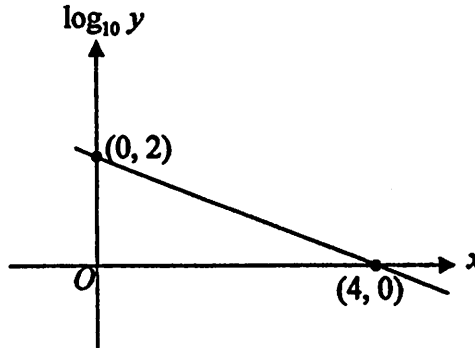


Diagram 12
Rajah 12

- (a) Express the equation $y = 100p^x$ in its linear form used to obtain the straight line graph shown in Diagram 12.

Ungkapkan persamaan $y = 100p^x$ dalam bentuk linear yang digunakan untuk memperoleh graf garis lurus seperti ditunjukkan dalam Rajah 12.

- (b) Find the value of p .
Cari nilai p

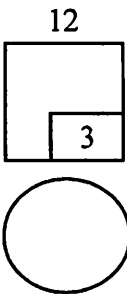
[3 marks]

[3 markah]

Answer / Jawapan :

(a)

(b)



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12

SULIT

- 13 Diagram 13 shows a straight line passing through $A(0, 4)$ and $C(6, -2)$.
 Diagram 13 menunjukkan garis lurus yang melalui $A(0, 4)$ dan $C(6, -2)$.

For
Examiner's
Use

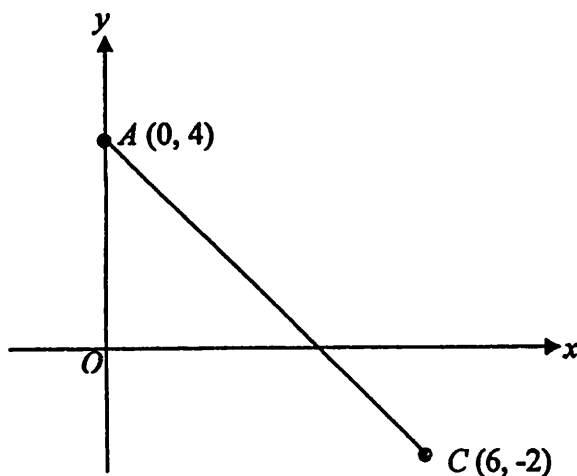


Diagram 13
Rajah 13

- (a) A point B is midpoint AC , find the coordinates of B .
 Suatu titik B ialah titik tengah AC , cari titik B .
- (b) A point $P(x, y)$ moves such that $PB = PC$, find the equation of the locus of P .
 Suatu titik $P(x, y)$ bergerak dengan keadaan $PB = PC$, cari persamaan lokus bagi P .

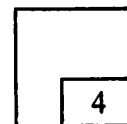
[4 marks]
[4 markah]

Answer / Jawapan :

(a)

(b)

13

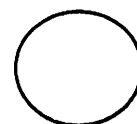
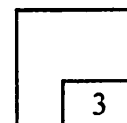


- 14 Given that $P(-1, -4)$, $Q(2, k)$ and $R(4, 11)$ are colinear, find the value of k .
 Diberi $P(-1, -4)$, $Q(2, k)$ dan $R(4, 11)$ adalah segaris, cari nilai k .

[3 marks]
[3 markah]

Answer / Jawapan:

14



For
Examiner's
Use

- 15 Diagram 15 shows vector \overline{OB} and vector \overline{AB} .
Rajah 15 menunjukkan vektor \overline{OB} dan vektor \overline{AB} .

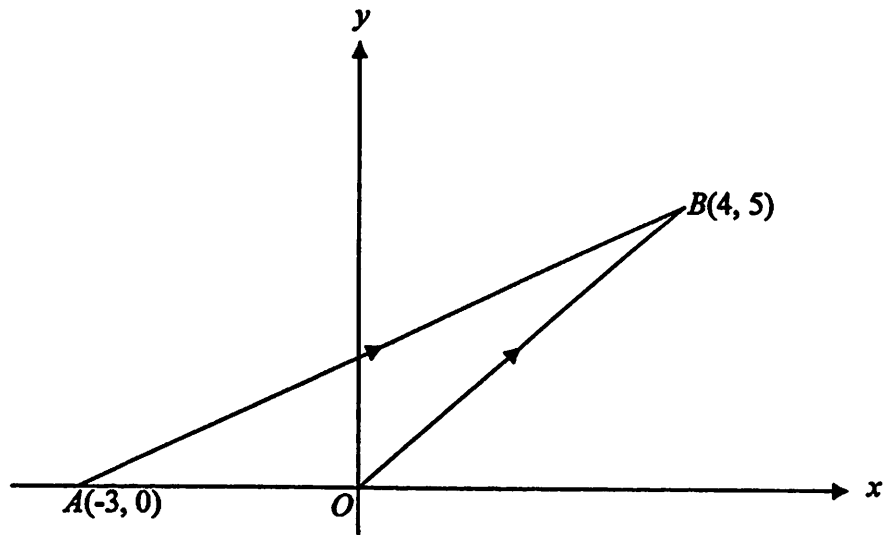


Diagram 15
Rajah 15

Express
Ungkapkan

(a) \overline{OB} in the form $\begin{pmatrix} x \\ y \end{pmatrix}$.

\overline{OB} dalam bentuk $\begin{pmatrix} x \\ y \end{pmatrix}$.

(b) \overline{AB} in the form $x\mathbf{i} + y\mathbf{j}$

\overline{AB} dalam bentuk $x\mathbf{i} + y\mathbf{j}$

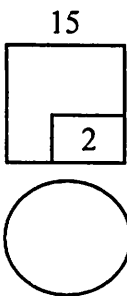
[2 marks]

[2 markah]

Answer / Jawapan:

(a)

(b)



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- 16 Given that $\underline{a} = 4\underline{i} + 6\underline{j}$ and $\underline{b} = 2\underline{i} + p\underline{j}$, where p is a constant.
 Diberi $\underline{a} = 4\underline{i} + 6\underline{j}$ dan $\underline{b} = 2\underline{i} + p\underline{j}$, dengan keadaan p ialah pemalar.

For
Examiner's
Use

- (a) Find the value of p if \underline{a} and \underline{b} are parallel.
 Cari nilai p jika \underline{a} dan \underline{b} adalah selari.
- (b) By using the value of p in (a), find the value of $|\underline{a} - \underline{b}|$.
 Dengan menggunakan nilai p dalam (a), cari nilai $|\underline{a} - \underline{b}|$.

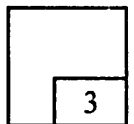
[3 marks]
[3 markah]

Answer / Jawapan:

(a)

(b)

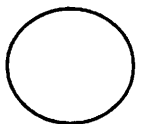
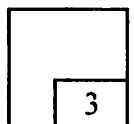
16



- 17 Solve the equation $4 \cos^2 x + 4 \sin x - 5 = 0$ for $0^\circ \leq x \leq 360^\circ$. [3 marks]
 Selesaikan persamaan $4 \cos^2 x + 4 \sin x - 5 = 0$ untuk $0^\circ \leq x \leq 360^\circ$. [3 markah]

Answer / Jawapan :

17



For
Examiner's
Use

- 18 Diagram 18 shows a semicircle with centre O and radius 8 cm.
Rajah 18 menunjukkan sebuah semi bulatan berpusat O dan berjajari 8 cm.

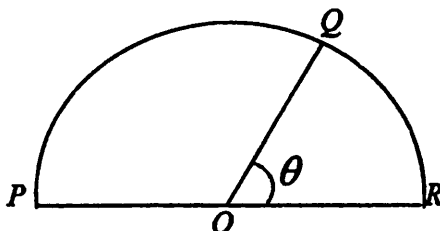


Diagram 18
Rajah 18

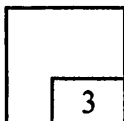
Given the length of arc PQ is equal to perimeter of minor sector OQR .
Diberi panjang lengkok PQ adalah sama dengan perimeter sektor minor OQR .

Find the value of θ , in radians.
Cari nilai θ , dalam radian.
[Use / Guna $\pi = 3.142$]

[3 marks]
[3 markah]

Answer / Jawapan :

18

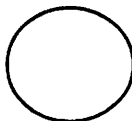
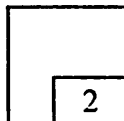


- 19 The curve $y = f(x)$ is such that $\frac{dy}{dx} = 2kx - 9$, where k is a constant, has a turning point at $x = 3$. Find the value of k . [2 marks]

Suatu lengkung $y = f(x)$ adalah dengan keadaan $\frac{dy}{dx} = 2kx - 9$, dengan keadaan k ialah pemalar, mempunyai titik pusingan pada $x = 3$. Cari nilai k . [2 markah]

Answer / Jawapan :

19



20 Given that $y = x^2 - 3x + 2$,

Diberi $y = x^2 - 3x + 2$,

(a) find the value of $\frac{dy}{dx}$ when $x = 4$,

cari nilai bagi $\frac{dy}{dx}$ apabila $x = 4$,

(b) express the approximate change in x , in terms of p , when y changes from 6 to $6 + p$, where p is a small value.

ungkapkan perubahan kecil bagi x , dalam sebutan p , apabila y berubah daripada 6 kepada $6 + p$, dengan keadaan p ialah nilai yang kecil.

[3 marks]

[3 markah]

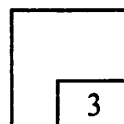
Answer / Jawapan:

(a)

(b)

For
Examiner's
Use

20



21 Given that $\frac{d}{dx}\left(\frac{x^2}{x-1}\right) = f(x)$, find the value of $\int_0^4 [x - f(x)] dx$.

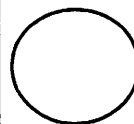
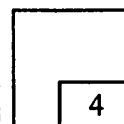
[4 marks]

Diberi $\frac{d}{dx}\left(\frac{x^2}{x-1}\right) = f(x)$, cari nilai $\int_0^4 [x - f(x)] dx$.

[4 markah]

Answer / Jawapan:

21



For
Examiner's
Use

- 22 A set of data consists of 2, 3, 6, 6, 7, 8, 9, 12 and 13.
Suatu set data terdiri daripada 2, 3, 6, 6, 7, 8, 9, 12 dan 13.

Determine
Tentukan

- (a) the range of the data,
julat bagi data itu,
- (b) the interquartile range of the data.
julat antara kuartil bagi data itu.

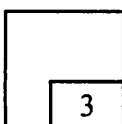
[3 marks]
[3 markah]

Answer / Jawapan:

(a)

(b)

22



- 23 Diagram 23 shows six cards of different letters.
Rajah 23 menunjukkan enam keping kad huruf yang berlainan.



Diagram 23
Rajah 23

How many
Berapa banyak

- (a) the number of possible arrangement, in a row, of all the cards.
bilangan cara susunan yang mungkin, dalam satu baris, semua kad itu.
- (b) the number of these arrangements in which a vowel are side by side.
bilangan cara susunan itu dengan keadaan huruf vokal adalah bersebelahan.

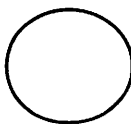
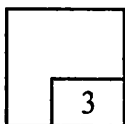
[3 marks]
[3 markah]

Answer / Jawapan:

(a)

(b)

23



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- 24 The probability that team *A* qualifies for the final of a tennis game is $\frac{3}{5}$ while the probability that team *B* qualifies is $\frac{1}{4}$.

Kebearangkalian pasukan A layak ke peringkat akhir dalam suatu perlawanan tenis ialah $\frac{3}{5}$ manakala kebarangkalian pasukan B layak ialah $\frac{1}{4}$.

Find the probability that
Cari kebarangkalian

- (a) both of them qualify for the final,
kedua-dua pasukan layak ke peringkat akhir,
- (b) only one of them qualifies for the final.
hanya satu pasukan layak ke peringkat akhir.

[3 marks]
[3 markah]

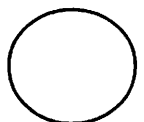
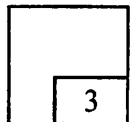
Answer / Jawapan:

(a)

(b)

For
Examiner's
Use

24



For
Examiner's
Use

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

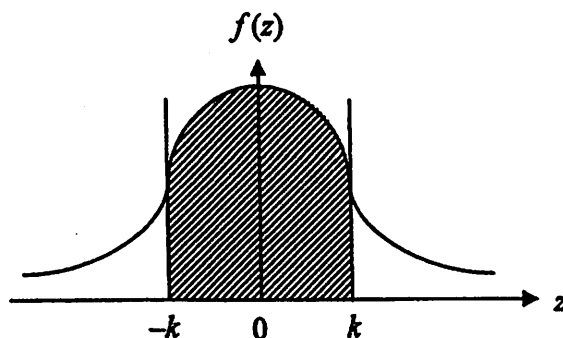


Diagram 25
Rajah 25

The probability represented by the area of the shaded region is 0.5160.
Kebarangkalian yang diwakili oleh luas kawasan berlorek ialah 0.5160.

- (a) Find the value of k ,
Cari nilai k ,
- (b) X is a continuous random variable which is normally distributed with a mean of 30 and a standard deviation of 4.
Find the value of X when the z -score is k .

X ialah pembolehubah rawak selanjar yang bertaburan secara normal dengan min 30 dan sisihan piawai 4.

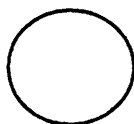
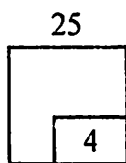
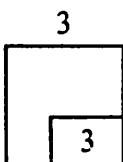
Cari nilai X apabila skor- z ialah k .

[4 marks]
[4 markah]

Answer / Jawapan:

(a)

(b)



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END OF QUESTION PAPER
KERTAS SOALAN TAMAT

20

SULIT

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 answer 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 $N(0, 1)$ table 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 diprogramkan.
10. Hand in this question paper to the invigilator at the end of the examination.
Serahkan kertas soalan ini kepada pegawai peperiksaan di akhir peperiksaan.

INFORMATION FOR CANDIDATES