

3472/1
MATEMATIK
TAMBAHAN
KERTAS 1
OGOS/SEPT 2019
2 JAM

NO KAD PENGENALAN

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Nama Pelajar :

Tingkatan:



MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
(CAWANGAN KELANTAN)

MODUL KOLEKSI ITEM
PERCUBAAN SPM
2019

MATEMATIK TAMBAHAN
KERTAS 1
MASA :DUA JAM

ADD MATH K1 TING 5

**JANGAN BUKA KERTAS SOALAN INI
SEHINGGA DIBERITAHU**

1. *Tulis nama dan tingkatan anda pada ruangan yang disediakan.*
2. *Kertas soalan ini adalah dalam dwibahasa.*
3. *Soalan dalam 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.*

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

Kertas soalan ini mengandungi 32 halaman bercetak

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

Rumus-rumus berikut boleh membantu anda menjawab soalan. Simbol-simbol yang diberi adalah yang biasa digunakan.

ALGEBRA

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

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

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

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

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

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

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

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

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

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

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

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

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

CALCULUS / KALKULUS

$$1. y = uv$$

$$\frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$$

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

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

$$4. \text{Area under a curve}$$

Luas di bawah lengkung

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

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

$$5. \text{Volume generated}$$

Isipadu janaan

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

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

STATISTICS / STATISTIK

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

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

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

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

5. $m = L + \left(\frac{\frac{1}{2}N - F}{f_m} \right) C$

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

7. $\bar{I} = \frac{\sum W_i I_i}{\sum W_i}$

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

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

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

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

12. Mean / Min = np

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

14. $Z = \frac{X - \mu}{\sigma}$

GEOMETRI (GEOMETRY)

1. Distance / Jarak

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

2. Midpoint / Titik tengah

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

3. A point dividing a segment of a line

Titik yang membahagi suatu tembereng garis

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

4. Area of triangle / Luas segi tiga

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

5. $|r| = \sqrt{x^2 + y^2}$

6. $\hat{r} = \frac{x\mathbf{i} + y\mathbf{j}}{\sqrt{x^2 + y^2}}$

TRIGONOMETRY / TRIGONOMETRI

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

2. Area of sector = $\frac{1}{2} r^2 \theta$
Luas sektor, $L = \frac{1}{2} j^2 \theta$

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

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

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

6. $\sin 2A = 2 \sin A \cos A$
 $\sin 2A = 2 \sin A \text{kos} A$

7. $\cos 2A = \cos^2 A - \sin^2 A$
 $= 2 \cos^2 A - 1$
 $= 1 - 2 \sin^2 A$

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

8. $\sin(A \pm B) = \sin A \cos B \pm \cos A \sin B$
 $\sin(A \pm B) = \sin A \text{kos} B \pm \text{kos} A \sin B$

9. $\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$
 $\text{kos}(A \pm B) = \text{kos} A \text{kos} B \mp \sin A \sin B$

10. $\tan(A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$

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

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

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

14. Area of triangle / *Luas segi tiga*
 $= \frac{1}{2} ab \sin C$

Answer all questions.
Jawab semua soalan.

1. Diagram 1 shows a standardised normal distribution graph.
Rajah 1 menunjukkan satu graf taburan normal piawai.

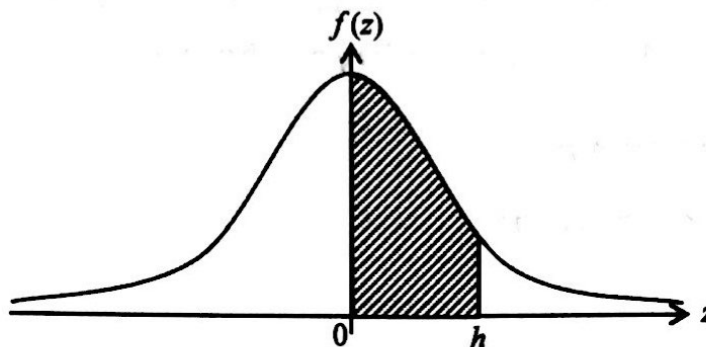


Diagram 1
Rajah 1

Given that the area of the shaded region is 38.69% of the total area under the curve,

Diberi bahawa luas kawasan berlorek ialah 38.69% daripada keseluruhan luas rantau di bawah lengkung.

Find
Cari

(a) $P(z > h)$

- (b) X is a continuous random variable which is normally distributed with a mean of 25 and a standard deviation of 3. Find the value of X when the z -score is h .

X adalah pembolehubah rawak selanjar yang bertabur secara normal dengan min 25 dan sisihan piawai 3. Cari nilai X apabila skor- z ialah h .

[3 marks]
[3 markah]

Jawapan:

(a)

(b)

1	
	3
○	

For
Examiner's
Use

2

Given three consecutive terms for a geometric progression are

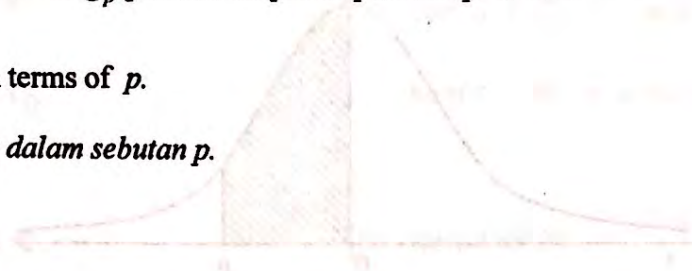
$\frac{1}{2}$, $\log_p p$ and $4\log_p q$, where p and q are the constants.

Diberi tiga sebutan berturutan bagi suatu janjang geometri adalah

$\frac{1}{2}$, $\log_p p$ dan $4\log_p q$, di mana p dan q adalah pemalar.

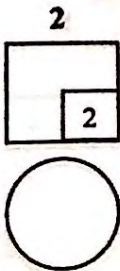
Express q in terms of p .

Ungkapkan q dalam sebutan p .



[2 marks]
[2 markah]

Answer / Jawapan:



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For
Examiner's
Use

- 3 Diagram 2 shows that the graph of the function $f(x) = |4x + 1|$ for the domain $-4 \leq x \leq 0$.

Rajah 2 menunjukkan graf bagi fungsi $f(x) = |4x + 1|$ untuk domain $-4 \leq x \leq 0$.

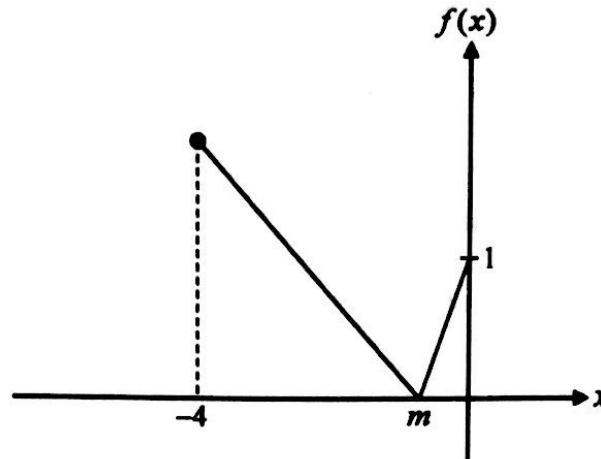


Diagram 2
Rajah 2

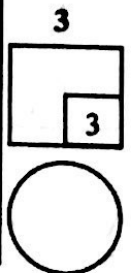
State
Nyatakan

- (a) the value of m ,
nilai m ,
- (b) the range of values of $f(x)$ corresponding to the given domain.
julat nilai bagi $f(x)$ sepadan dengan domain yang diberikan.

[3 marks]
[3 markah]

Answer / Jawapan:

- (a)
- (b)



For
Examiner's
Use

4

The variables x and y are related by the equations $y = px^3 + qx^2$. If the graph of $\frac{y}{x^2}$ against x is plotted, a straight line which has a gradient of -2 and passes through the point $(3,0)$ is obtained.

Pemboleh ubah x dan y dihubungkan oleh persamaan $y = px^3 + qx^2$. Jika graf $\frac{y}{x^2}$ melawan x diplot, satu garis lurus yang mempunyai kecerunan -2 dan melalui titik $(3,0)$ terhasil.

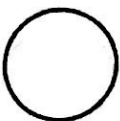
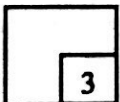
Find the values of p and of q .
Cari nilai bagi p dan q .

[3 marks]

[3 markah]

Answer/Jawapan :

4



- 5 Given that the function $f(x) = rx - s$ and $f^2(x) = 9x - 5$, where r and s are constants, find the value of r and of s if $r < 0$.

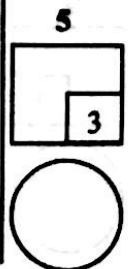
Diberi bahawa fungsi $f(x) = rx - s$ dan $f^2(x) = 9x - 5$, di mana r dan s adalah pemalar, cari nilai bagi r dan s jika $r < 0$.

[3 marks]

[3 markah]

Answer/Jawapan :

For
Examiner's
Use



For
Examiner's
Use

- 6 Given the curve $y = x(x^2 - 3) + 5$ intersect the y -axis at point P . Find the gradient of the curve at the point P .

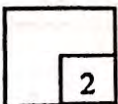
Diberi lengkung $y = x(x^2 - 3) + 5$ bersilang dengan paksi- y pada titik P . Cari kecerunan lengkung pada titik P .

[2 marks]

[2 markah]

Answer/Jawapan :

6



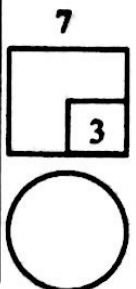
For
Examiner's
Use

- 7 Given the quadratic functions $f(x) = qx^2 - 8x + 3$. Find the smallest value of integer of q such that $f(x)$ is always positive for all values of x .

Diberi fungsi kuadratik $f(x) = qx^2 - 8x + 3$. Cari nilai integer terkecil bagi q supaya $f(x)$ sentiasa positif untuk semua nilai bagi x .

[3 marks]
[3 markah]

Answer / Jawapan:



For
Examiner's
Use

- 8 Given that the curve $f(x) = (x-2m)^2 - [3n+1]$ intercept the x -axis at the points $(2,0)$ and $(-4,0)$.

Diberi lengkung $f(x) = (x-2m)^2 - [3n+1]$ memotong paksi- x pada titik-titik $(2,0)$ dan $(-4,0)$.

- (a) Express the maximum value, in terms of n , for $|f(x)|$.

Ungkapkan nilai maksimum, dalam sebutan n , bagi $|f(x)|$.

- (b) Find the value of m .

Cari nilai bagi m .

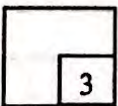
[3 marks]
[3 markah]

Answer / Jawapan:

(a)

(b)

8



- 9 Table 1 shows the scores obtained by a group of students in a competition.
Jadual 1 menunjukkan skor yang diperolehi sekumpulan pelajar dalam satu pertandingan.

Score Skor	Number of students Bilangan pelajar
0	5
1	q
2	6
3	4
4	7

Table 1
Jadual 1

Find

Cari

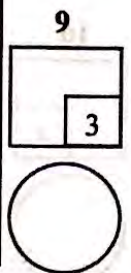
- (a) the maximum value of q if the mode is 4,
nilai maksimum bagi q jika mod ialah 4,
- (b) the range of values of q if the median is 2
julat nilai q jika median ialah 2.

[3 marks]
[3 markah]

Answer / *Jawapan:*

(a)

(b)



For
Examiner's
Use

- 10 (a) Given the equation $2\log_y 3x = 1$. State y in terms of x .
Diberi persamaan $2\log_y 3x = 1$. Nyatakan y dalam sebutan x .
- (b) Solve the equation $\log_3 x = \log_9(2x+3)$.
Selesaikan persamaan $\log_3 x = \log_9(2x+3)$.

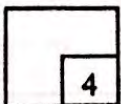
[4 marks]
[4 markah]

Answer / Jawapan:

(a)

(b)

10



11 Given $h^{2x} = 6h^x + 16$. Express x in terms of h .

Diberi $h^{2x} = 6h^x + 16$. Ungkapkan x dalam sebutan h .

[3 marks]
[3 markah]

Answer / Jawapan:



For
Examiner's
Use

11

3



For
Examiner's
Use

- 12 Diagram 3 shows a quadrilateral $PQRS$ such that $\overline{PS} = (v-1)\underline{x}$, $\overline{SR} = w\underline{y}$ and $\overline{QR} = w\underline{x}$, where v and w are constants.

Rajah 3 menunjukkan sisiempat $PQRS$ dengan keadaan $\overline{PS} = (v-1)\underline{x}$, $\overline{SR} = w\underline{y}$ dan $\overline{QR} = w\underline{x}$ dengan keadaan v dan w ialah pemalar.

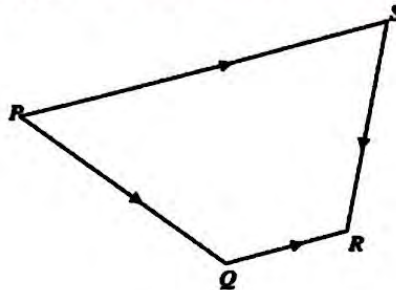


Diagram 3
Rajah 3

- (a) Express \overline{PQ} , in terms of v, w, \underline{x} and \underline{y} .
Ungkapkan \overline{PQ} , dalam sebutan v, w, \underline{x} dan \underline{y} .
- (b) If $\overline{PQ} = \left(\frac{v+1}{5}\right)\underline{y}$ and $w = \frac{1}{2}$, find the value of v .
Jika $\overline{PQ} = \left(\frac{v+1}{5}\right)\underline{y}$ dan $w = \frac{1}{2}$, cari nilai v .

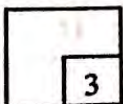
[3 marks]
[3 markah]

Answer / Jawapan:

(a)

(b)

12



- 13 Given that $\underline{m} = 2\underline{i} - 3\underline{j}$ and $\underline{n} = h\underline{i} - \underline{j}$, where h is a constant.

Diberi $\underline{m} = 2\underline{i} - 3\underline{j}$ dan $\underline{n} = h\underline{i} - \underline{j}$, dengan keadaan h adalah pemalar.

Find the possible values of h such that $|2\underline{m} - \underline{n}| = 13$.

Cari nilai-nilai yang mungkin bagi h dengan keadaan $|2\underline{m} - \underline{n}| = 13$.

[3 marks]

[3 markah]

Answer / Jawapan:

For
Examiner's
Use

13



For
Examiner's
Use

- 14 Given one the roots of the quadratic equation $2x^2 - px + 24 = 0$, where p is a constants, is one third of the other root. Find the possible values of p .

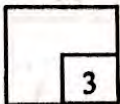
Diberi salah satu punca bagi persamaan kuadratik $2x^2 - px + 24 = 0$, dengan keadaan p ialah pemalar, adalah satu pertiga punca yang satu lagi. Cari nilai-nilai yang mungkin bagi p .

[3 marks]

[3 markah]

Answer / Jawapan:

14



For
Examiner's
Use

15 Given 2α and 2β are the roots of the quadratic equations $2x^2 + 8x + 4 = 0$. Form the quadratic equation which has the roots α and β .

Diberi 2α dan 2β ialah punc-punca persamaan kuadratik $2x^2 + 8x + 4 = 0$.
Bentukkan persamaan kuadratik yang mempunyai punca-punca α dan β

[3 marks]

[3 markah]

Answer / Jawapan:

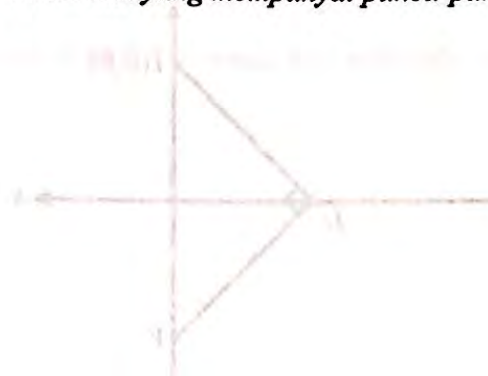


Diagram
Rajah

Let 2α and 2β be the roots of the equation $2x^2 + 8x + 4 = 0$.
Diberi 2α dan 2β sebagai punca-punca persamaan kuadratik $2x^2 + 8x + 4 = 0$.

15

3

For
Examiner's
Use

- 16 Diagram 4 shows a TUV triangle
Rajah 4 menunjukkan suatu segitiga TUV

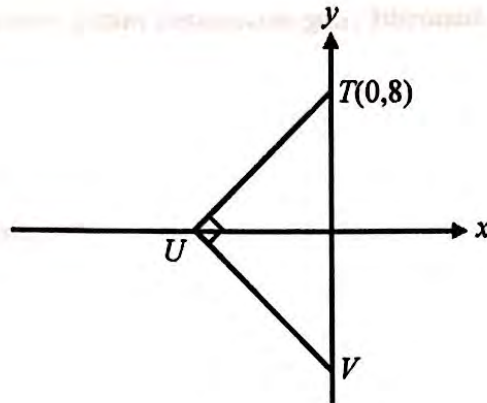


Diagram 4
Rajah 4

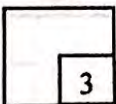
Given the gradient of straight line TU is t .
Find the coordinates of point V in terms of t .
Diberi kecerunan TU adalah t .
Cari koordinat bagi titik V dalam sebutan t .

[3 marks]

[3 markah]

Answer / *Jawapan:*

16



For
Examiner's
Use

- 17 Given $\sin A = \frac{1}{p}$ and $\cos B = \frac{q}{2}$, where A is an acute angle and B is an obtuse angle.

Diberi $\sin A = \frac{1}{p}$ dan $\cos B = \frac{q}{2}$, di mana A adalah sudut tirus dan B adalah sudut cakah.

State
Nyatakan

- (a) the range for q ,
julat bagi q ,
- (b) $\operatorname{cosec} B$, in terms of q ,
kosek B , dalam sebutan q ,
- (c) $\cos 2A$, in terms of p .
kos $2A$, dalam sebutan p .

[4 marks]
[4 markah]

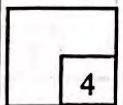
Answer / Jawapan:

(a)

(b)

(c)

17



SULIT

[LIHAT HALAMAN SEBELAH]

For
Examiner's
Use

18

Solve the equation $\tan^2 x + \frac{7}{\cot x} - 8 = 0$ for $0^\circ \leq x \leq 180^\circ$.

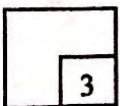
Selesaikan persamaan $\tan^2 x + \frac{7}{\cot x} - 8 = 0$ untuk $0^\circ \leq x \leq 180^\circ$.

[3 marks]

[3 markah]

Answer / Jawapan:

18



- 19 Diagram 5 shows a quadrant of a circle, AOC , with centre O .
Rajah 5 menunjukkan sebuah sukuan bulatan, AOC , berpusat O .

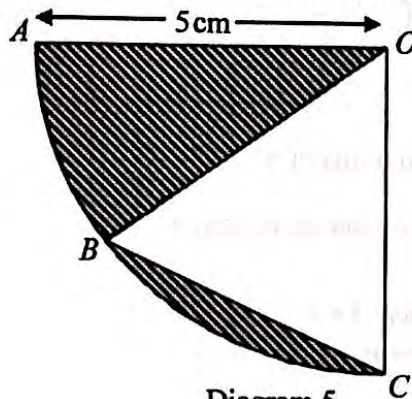


Diagram 5
Rajah 5

Point B lies on arc AC and $\angle BOC = m$ rad.

Titik B terletak pada lengkok AC dan $\angle BOC = m$ rad.

- (a) If BOC is an equilateral triangle, find the value of m in terms of π .

Jika BOC ialah sebuah segitiga sama sisi, cari nilai m dalam sebutan π .

- (b) Find area of shaded region in terms of π and m .

Cari luas kawasan berlorek dalam sebutan π dan m .

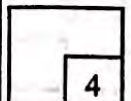
[4 marks]
[4 markah]

Answer/Jawapan :

(a)

(b)

19



For
Examiner's
Use

20 (a) Given $2h - \int_2^{3m-1} f(x) dx = \int_n^2 f(x) dx - 8$, where h , m and n are the constants.

Diberi $2h - \int_2^{3m-1} f(x) dx = \int_n^2 f(x) dx - 8$, di mana h , m dan n adalah pemalar.

(i) Express $\int_n^{3m-1} f(x) dx$, in terms of h .

Ungkapkan $\int_n^{3m-1} f(x) dx$, dalam sebutan h .

(ii) Find the value of h , if $3m-1 = n$.

Cari nilai h , jika $3m-1 = n$.

(b) Given $\frac{d(5t-4)^2}{dt} = 10g(t)$. Find $\int_1^k g(t) dt$ in terms of k , where k is a constant.

Diberi $\frac{d(5t-4)^2}{dt} = 10g(t)$. Cari $\int_1^k g(t) dt$ dalam sebutan k , di mana k adalah pemalar.

[4 marks]

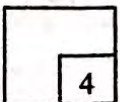
[4 markah]

Answer / Jawapan:

(a)

(b)

20



For
Examiner's
Use

- 21 The normal to the curve $y = x^2 + 1$ at point P is parallel to the straight line $2y + x = 8$.

Find the equation of the normal to the curve at point P .

Garis normal kepada lengkung $y = x^2 + 1$ pada titik P adalah selari dengan garis lurus $2y + x = 8$.

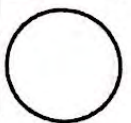
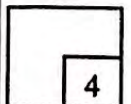
Cari persamaan garis normal kepada lengkung itu pada titik P .

[4 marks]

[4 markah]

Answer / Jawapan:

21



For
Examiner's
Use

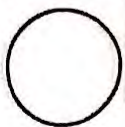
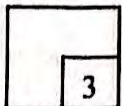
- 22 The probability of Amin going to the store is 0.4. If he goes to the shop, the probability he will ride a motorcycle is 0.7. If he does not go to the shop, the probability he will ride a motorcycle is 0.1. Find the probability that Amin will ride a motorcycle.

Kebarangkalian Amin pergi ke kedai ialah 0.4. Sekiranya dia pergi ke kedai, kebarangkalian dia akan menunggang motosikal ialah 0.7. Sekiranya dia tidak pergi ke kedai, kebarangkalian dia akan menunggang motosikal ialah 0.1. Cari kebarangkalian bahawa Amin akan menunggang motosikal.

[3 marks]
[3 markah]

Answer / Jawapan:

22



For
Examiner's
Use

- 23 A complete revolving ceiling fan of 35 laps within 5 seconds at speed four. When the switch is off, the rotation decrease by 3 laps from the previous 5 seconds.

Sebuah kipas siling berpusing lengkap sebanyak 35 pusingan dalam masa 5 saat pada tahap kelajuan empat. Apabila suis dimatikan, pusingannya berkurang sebanyak 3 pusingan daripada sebelumnya selama 5 saat.

Calculate the time taken, in seconds, when the fan rotates by 2 laps only in the last 5 seconds before it stops.

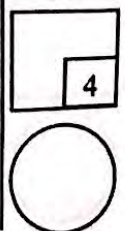
Hitung masa ,dalam saat, yang diambil apabila kipas berpusing sebanyak 2 pusingan sahaja pada 5 saat terakhir sebelum ia berhenti.

[4 marks]

[4 markah]

Answer / Jawapan:

23



For
Examiner's
Use

- 24 Diagram 6 shows 8 tents to be built in two rows.
Rajah 6 menunjukkan 8 buah khemah yang akan dibina dalam dua baris.



Diagram 6

Rajah 6

There are 3 orange tents and other 5 tents in different colour such as red, yellow, blue, black and green.

Terdapat 3 buah khemah berwarna oren dan 5 buah khemah yang berlainan warna iaitu merah, kuning, biru, hitam dan hijau.

Find the number of arrangements of all the tents, if 3 orange tents are required to be side by side.

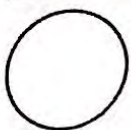
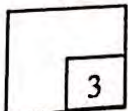
Cari bilangan susunan bagi semua khemah, jika 3 buah khemah berwarna oren mesti berada bersebelahan.

[3 marks]

[3 markah]

Answer / Jawapan:

24



- 25 Diagram 7 shows a parallelogram shaped track used by Zulaikha.
Rajah 7 menunjukkan trek larian berbentuk segiempat selari yang digunakan oleh Zulaikha.

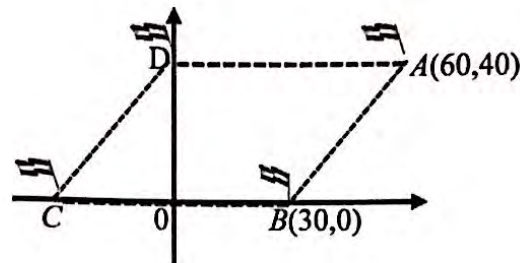


Diagram 7
Rajah 7

[1 unit = 10 m]

- (a) Find coordinates point C,

Cari koordinat titik C,

- (b) The coach set the time of 6 minutes as the maximum time to complete one round to qualify Zulaikha to join a competition. Is Zulaikha eligible if she can run at speed 20 kmj^{-1} ? Show the calculations to support your answer.

Jurulatih menetapkan masa 6 minit sebagai masa maksimum untuk melengkapkan satu pusingan bagi melayakkan Zulaikha menyertai suatu pertandingan. Adakah Zulaikha layak jika beliau mampu berlari dengan kelajuan 20 kmj^{-1} ? Tunjukkan pengiraan bagi menyokong jawapan anda.

[4 marks]
[4 markah]

**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	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

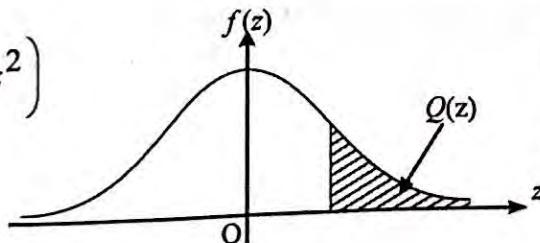
For negative z use relation :

Bagi z negative guna hubungan :

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

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

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



Example / Contoh:

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

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

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

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