

NO. KAD PENGENALAN

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SET A

ANGKA GILIRAN

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Nama:.....

Tingkatan:.....



JABATAN PENDIDIKAN SELANGOR
MAJLIS PENGETUA SEKOLAH MENENGAH



**PROGRAM PENINGKATAN PRESTASI AKADEMIK
PERCUBAAN SIJIL PELAJARAN MALAYSIA 2017**

3472/1

ADDITIONAL MATHEMATICS

Kertas 1

Ogos

2 jam

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Tuliskan nombor kad pengenalan, angka giliran, nama dan tingkatan anda pada petak 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.*

Kod Pemeriksa :		
Soalan	Markah Penuh	Markah Diperoleh
1	2	
2	2	
3	3	
4	3	
5	3	
6	3	
7	4	
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19	4	
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21	4	
22	3	
23	4	
24	4	
25	3	
Jumlah	80	

Kertas ini mengandungi 31 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

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

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

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

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

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

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

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

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

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

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

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

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

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

CALCULUS KALKULUS

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

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

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

4 Area under a curve
Luas di bawah lengkung

$$= \int_a^b y dx \quad \text{or (atau)}$$

$$= \int_a^b x dy$$

5 Volume of revolution
Isipadu kisanan

$$= \int_a^b \pi y^2 dx \quad \text{or (atau)}$$

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

STATISTICS
STATISTIK

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

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

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

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

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

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

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

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

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

$$10. P(A) = \frac{n(A)}{n(S)}$$

$$11. P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$12. \text{Mean / Min, } \mu = np$$

$$13. Z = \frac{X - \mu}{\sigma}$$

GEOMETRY
GEOMETRI

1. Distance / Jarak

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

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

$$(x, y) = \left(\frac{nx_1 + m x_2}{m+n}, \frac{ny_1 + my_2}{m+n} \right)$$

4. Area of a triangle / Luas segi tiga

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

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

$$6. \hat{r} = \frac{xi+yj}{\sqrt{x^2+y^2}}$$

[Lihat halaman sebelah

TRIGONOMETRY**TRIGONOMETRI**

1. Arc length, $s = r \theta$

Panjang lengkok, $s = j \theta$

2. Area of a sector, $A = \frac{1}{2} r^2 \theta$

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

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

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

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

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

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

$\operatorname{kosek}^2 A = 1 + \cot^2 A$

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

$\sin 2A = 2 \sin A \cos A$

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

$= 2 \cos^2 A - 1$

$= 1 - 2 \sin^2 A$

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

$= 2 \cos^2 A - 1$

$= 1 - 2 \sin^2 A$

8. $\sin (A \pm B) = \sin A \cos B \pm \cos A \sin B$

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

9. $\cos (A \pm B) = \cos A \cos B \mp \sin A \sin B$

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

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

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

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

14. Area of triangle / *Luas segi tiga*

$= \frac{1}{2} ab \sin C$

Answer **all** questions.
Jawab semua soalan.

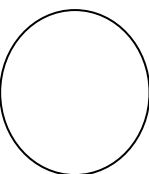
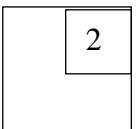
- 1** A set of seven numbers has a mean of 18. When a number is taken out from the set, the mean decreases by 2. Find the number.
Satu set tujuh nombor mempunyai min 18. Apabila satu nombor dikeluarkan daripada set itu, min berkurang sebanyak 2. Cari nombor itu.

[2 marks]

[2 markah]

Answer / Jawapan:

1



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For
Examiner's
Use

2

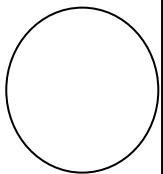
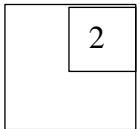
In a group of teachers, the mean and variance of the number of teachers who own a Proton car are 6 and 2.4 respectively. Find the probability that a teacher chosen at random owns a Proton car.

Dalam sekumpulan guru, min dan varians bagi bilangan guru yang memiliki sebuah kereta Proton ialah 6 dan 2.4 masing-masing. Cari kebarangkalian seorang guru yang dipilih secara rawak memiliki sebuah kereta Proton.

[2 marks]

[2 markah]

Answer / Jawapan:

2

- 3 Diagram 3 shows the arrangement of eight chairs in a room.
Rajah 3 menunjukkan susunan lapan buah kerusi di dalam sebuah bilik.

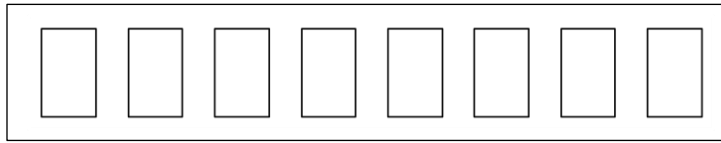


Diagram 3
Diagram 3

- (a) Ali, Othman and Ridzuan came into the room and each occupied a chair, find the number of ways they can be seated.
Ali, Othman dan Ridzuan masuk ke dalam bilik dan setiap orang memenuhi sebuah kerusi, cari bilangan cara kedudukan mereka.
- (b) If Abu and his wife also came into the room and they prefer to sit side by side, find the number of ways the five of them can be seated.
Jika Abu dan isterinya juga masuk ke dalam bilik itu dan mereka ingin duduk bersebelahan, cari bilangan cara kedudukan lima orang itu.

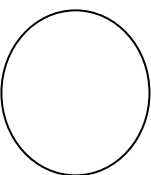
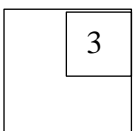
[3 marks]
 [3 markah]

Answer / *Jawapan:*

(a)

(b)

3



[Lihat halaman sebelah

For
Examiner's
Use

- 4 In a selection of the captain of a sport house, the probability of Amir is chosen is $\frac{1}{5}$ while the probability that either Amir or Osman is chosen is $\frac{7}{10}$.

Dalam suatu pemilihan seorang kapten rumah sukan, kebarangkalian Amir dipilih ialah $\frac{1}{5}$ manakala kebarangkalian sama ada Amir atau Osman dipilih ialah $\frac{7}{10}$.

Find the probability that

Cari kebarangkalian bahawa

- (a) Osman is chosen,
Osman dipilih,
- (b) Amir or Osman is **not** chosen.
*Amir atau Osman **tidak** dipilih.*

[3 marks]

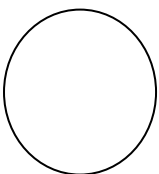
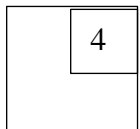
[3 markah]

Answer / Jawapan:

(a)

(b)

4



5. Given $\int_0^4 f(x) dx = 5$ and $\int_1^3 g(x) dx = 6$.
 Diberi $\int_0^4 f(x) dx = 5$ dan $\int_1^3 g(x) dx = 6$.

Find the value of

Cari nilai

- (a) $\int_0^4 2f(x)dx + \int_3^1 g(x)dx$,
 (b) k when $\int_1^3 [g(x) - kx] dx = 14$.
 k apabila $\int_1^3 [g(x) - kx] dx = 14$.

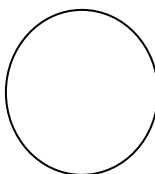
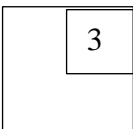
[3 marks]
 [3 markah]

Answer / Jawapan:

(a)

(b)

5



[Lihat halaman sebelah

For
Examiner's
Use

6

Diagram 6 shows a straw in a glass filled with orange juice. The volume of orange juice, $V \text{ cm}^3$, in the glass is given by $V = \frac{1}{2}h^3 + h$, where h is the height of the juice in the glass. Amin uses the straw to drink the orange juice at a rate of $5 \text{ cm}^3 \text{ s}^{-1}$.
Rajah 6 menunjukkan sebatang penyedut minuman di dalam gelas berisi jus oren. Isi padu jus oren, $V \text{ cm}^3$, dalam gelas itu diberi oleh $= \frac{1}{2}h^3 + h$, dengan keadaan h ialah tinggi jus di dalam gelas itu. Amin menggunakan penyedut minuman untuk minum jus dengan kadar $5 \text{ cm}^3 \text{ s}^{-1}$.

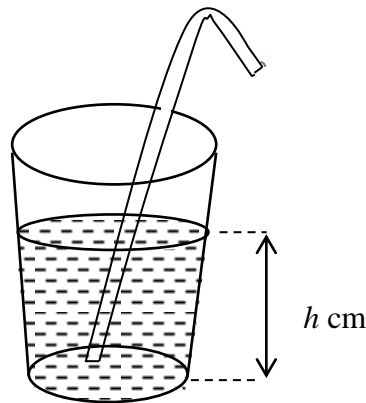


Diagram 6

Rajah 6

Find the height of the juice in the glass at the instant when the rate of change of the height of juice is -0.2 cm s^{-1} .

Cari tinggi jus dalam gelas itu pada ketika kadar perubahan tinggi jus ialah -0.2 cm s^{-1} .

[3 marks]

[3 markah]

Answer / Jawapan:

6

3

- 7 Diagram 7 shows part of the curve $y = \frac{3}{(2x-1)^2}$ which passes through $A(1, 3)$.

Rajah 7 menunjukkan sebahagian daripada lengkung $y = \frac{3}{(2x-1)^2}$ yang melalui titik $A(1, 3)$.

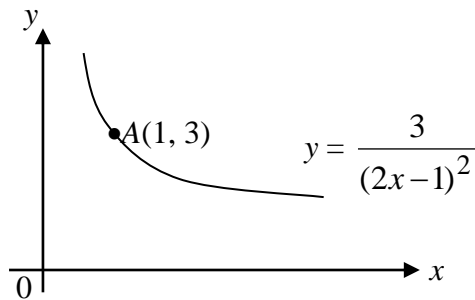


Diagram 7
Diagram 7

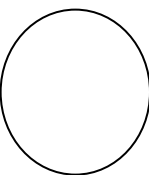
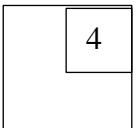
Find the equation of the tangent to the curve at point A .
Cari persamaan tangen kepada lengkung di titik A .

[4 marks]

[4 markah]

Answer / Jawapan:

7



[Lihat halaman sebelah

For
Examiner's
Use

8 Determine whether the lines $2y = 5 - 6x$ and $\frac{x}{2} - \frac{y}{6} = 1$ are parallel.

Give reason for your answer.

Tentukan sama ada kedua-dua garis $2y = 5 - 6x$ dan $\frac{x}{2} - \frac{y}{6} = 1$ adalah selari.

Berikan sebab untuk jawapan anda.

[2 marks]

[2 markah]

Answer / Jawapan:

8

2

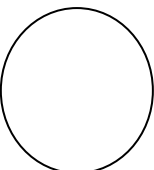
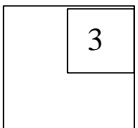
- 9 Given that the area of a triangle $A(p, 2)$, $B(6, 0)$ and $C(5, -2)$ is 4 unit^2 . Find the values of p .
Diberi bahawa luas segi tiga $A(p, 2)$, $B(6, 0)$ dan $C(5, -2)$ ialah 4 unit^2 . Cari nilai-nilai bagi p .

[3 marks]

[3 markah]

Answer / Jawapan:

9



[Lihat halaman sebelah

SULIT

For
Examiner's
Use

10 *Solution to this question by scale drawing will not be accepted.
Jawapan secara berskala tidak diterima untuk soalan ini.*

Given $\mathbf{a} = 2\mathbf{i} - \mathbf{j}$, $\mathbf{b} = \mathbf{i} + 3\mathbf{j}$, $P(1, -2)$ and $Q(5, 3)$. If $\vec{PQ} = m\mathbf{a} + n\mathbf{b}$ where m and n are constants.

Diberi $\mathbf{a} = 2\mathbf{i} - \mathbf{j}$, $\mathbf{b} = \mathbf{i} + 3\mathbf{j}$, $P(1, -2)$ dan $Q(5, 3)$. Jika $\vec{PQ} = m\mathbf{a} + n\mathbf{b}$ dengan keadaan m dan n ialah pemalar.

Find,
Cari,

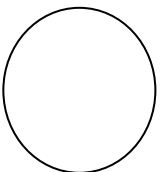
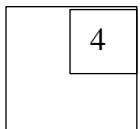
- (a) the value of m and of n ,
nilai m dan nilai n ,
- (b) the unit vector in the direction of \vec{PQ} .
vektor unit dalam arah \vec{PQ} .

[4 marks]

[4 markah]

Answer / Jawapan:

10



- 11** Mr. Ravi is a *roti canai* hawker. The daily profit that he can obtain, in RM, is given by $f : x \rightarrow \frac{6x-42}{5}$, where x is the number of *roti canai* sold in a day.

En. Ravi ialah seorang penjaja roti canai. Keuntungan harian yang dapat diperolehinya, dalam RM, diberi oleh $f : x \rightarrow \frac{6x-42}{5}$, dengan keadaan x ialah bilangan roti canai yang dijual dalam sehari.

Determine

Tentukan

- (a) the average daily profit obtained by Mr. Ravi if he has sold 231 *roti canai* in a week,
purata keuntungan harian yang diperolehi En. Ravi jika dia telah menjual 231 keping roti canai dalam seminggu,
- (b) the minimum number of *roti canai* that must be sold in a day so that Mr. Ravi would not experience any loss.
bilangan minimum roti canai yang perlu dijual dalam sehari supaya En. Ravi tidak mengalami sebarang kerugian.

[4 marks]

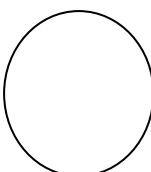
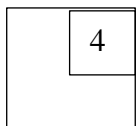
[4 markah]

Answer / *Jawapan:*

(a)

(b)

11



[Lihat halaman sebelah

For
Examiner's
Use

- 12** The information given is about the function g and the composite function g^2 .
Maklumat yang diberi adalah berkaitan fungsi g dan fungsi gubahan g^2 .

$$g : x \rightarrow a - bx, \text{ where } a \text{ and } b \text{ are constants and } b > 0$$
$$g : x \rightarrow a - bx, \text{ di mana } a \text{ dan } b \text{ ialah pemalar dan } b > 0$$
$$g^2 : x \rightarrow 9x + 8$$

Find the value of a and of b .
Cari nilai a dan nilai b .

[3 marks]
[3 markah]

Answer / *Jawapan:*

12

3

13 Given that $g(x) = \frac{3x}{2x+5}$, $x \neq k$. Find

Diberi bahawa $g(x) = \frac{3x}{2x+5}$, $x \neq k$. Cari

- (a) the value of k ,
nilai k ,
- (b) $g^{-1}(x)$.

[3 marks]
[3 markah]

Answer / Jawapan:

(a)

(b)

13

3

[Lihat halaman sebelah

SULIT

For
Examiner's
Use

14 Given that $\log_m 3 = p$ and $\log_m 4 = q$, express $\log_{12} 9m$ in terms of p and of q .

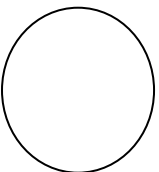
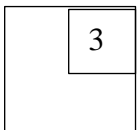
Diberi bahawa $\log_m 3 = p$ dan $\log_m 4 = q$, ungkapkan $\log_{12} 9m$ dalam sebutan p dan q .

[3 marks]

[3 markah]

Answer / Jawapan:

14



15 Given $2^{2x}(8^y) = 2$ and $9^x(3^y) = 27$, find the value of x and of y .

Diberi $2^{2x}(8^y) = 2$ dan $9^x(3^y) = 27$, cari nilai x dan nilai y .

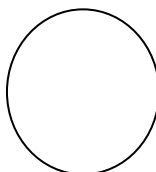
Answer / Jawapan:

[4 marks]

[4 markah]

15

4



[Lihat halaman sebelah

For
Examiner's
Use

- 16** Diagram 16 shows a straight line graph $(y - 2x)$ against x^2 . The variables x and y are related by the equation $y = px^2 + 2x + 5q$, where p and q are constants.

Rajah 16 menunjukkan graf $(y - 2x)$ melawan x^2 . Pembolehubah x dan y dihubungkan oleh persamaan $y = px^2 + 2x + 5q$, dengan keadaan p dan q ialah pemalar.

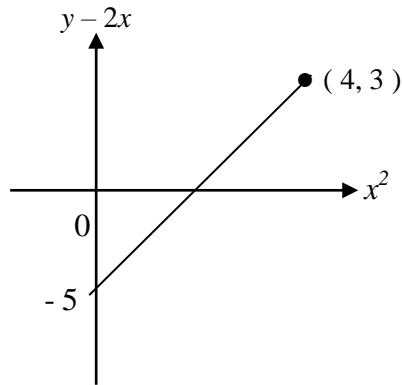


Diagram 16
Rajah 16

Find the value of p and of q .
Cari nilai p dan nilai q .

[3 marks]
[3 markah]

Answer / Jawapan:

16

3

- 17 Given α and β are the roots of the equation $x^2 - 2x + k = 0$, whereas 2α and 2β are the roots of the equation $x^2 + mx + 9 = 0$. Calculate the values of k and of m .

*Diberi α dan β ialah punca-punca bagi persamaan $x^2 - 2x + k = 0$, manakala 2α dan 2β ialah punca-punca bagi persamaan $x^2 + mx + 9 = 0$.
Hitung nilai k dan nilai m .*

[3 marks]
[3 markah]

Answer / Jawapan:

17

3

[Lihat halaman sebelah

For
Examiner's
Use

18 Find the range of values of x if $x \leq \frac{-3}{1-2x}$.

Cari julat nilai-nilai x jika $x \leq \frac{-3}{1-2x}$.

[3 marks]
[3 markah]

Answer / Jawapan:

18

3

- 19** Diagram 19 shows a circle with centre O and radius 12 cm. Given that A , B and C are points such that $OA = AB$ and $\angle OAC = 90^\circ$.

Rajah 19 menunjukkan bulatan berpusat di O dan berjajari 12 cm. Diberi bahawa titik-titik A , B dan C yang mana $OA = AB$ dan $\angle OAC = 90^\circ$.

[Use /Guna $\pi = 3.142$]

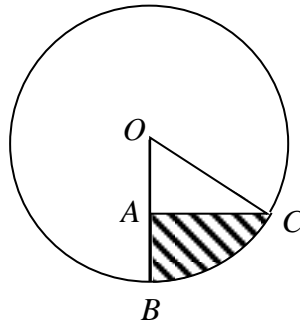


Diagram 19

Diagram 19

Find
Cari

- (a) $\angle BOC$, in radian,
 $\angle BOC$, dalam radian,
- (b) the area, in cm^2 , of the shaded region.
luas, dalam cm^2 , kawasan berlorek.

[4 marks]

[4 markah]

Answer / Jawapan:

(a)

(b)

19

4

[Lihat halaman sebelah

SULIT

For
Examiner's
Use

- 20** Given $\tan \theta = p$, where p is a constant and $180^\circ \leq \theta \leq 360^\circ$.
Diberi $\tan \theta = p$, dengan keadaan p ialah pemalar dan $180^\circ \leq \theta \leq 360^\circ$.

Find in terms of p ,
Cari dalam sebutan p ,

- (a) $\tan 2\theta$,
(b) $\operatorname{cosec} 2\theta$.
kosek 2θ .

[3 marks]
[3 markah]

Answer / *Jawapan:*

(a)

(b)

20

3

- 21** The probability that a student possesses a scientific calculator in a class is p .
Kebarangkalian bahawa seorang pelajar memiliki kalkulator saintifik dalam sebuah kelas ialah p .
- (a) Given the mean and standard deviation of the student possessing a scientific calculator is 18 and $\sqrt{7.2}$ respectively, find the value of p .
Diberi min dan sisihan piawai bagi pelajar yang memiliki kalkulator saintifik masing-masing ialah 18 dan $\sqrt{7.2}$, cari nilai p .
- (b) If 10 students are chosen randomly, find the probability that exactly 6 students possess scientific calculators.
Jika 10 orang pelajar dipilih secara rawak, cari kebarangkalian bahawa tepat 6 orang pelajar memiliki kalkulator saintifik.

[4 marks]

[4 markah]

Answer / Jawapan:

(a)

(b)

21

4

Lihat halaman sebelah

For
Examiner's
Use

- 22** Diagram 22 shows a standard normal distribution graph.
Rajah 22 menunjukkan satu graf taburan normal piawai.

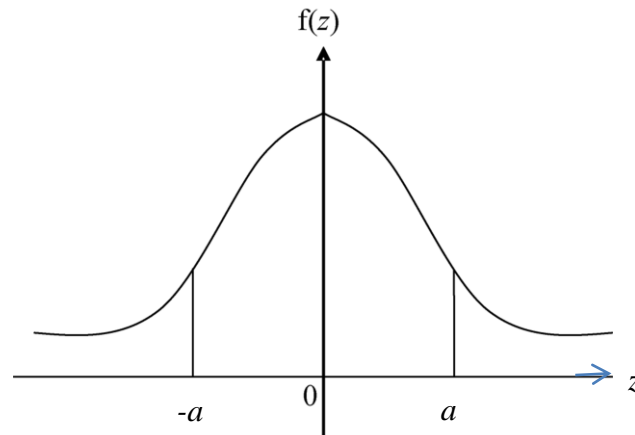


Diagram 22
Diagram 22

Given $P(-a < z < a) = 0.7698$, find the value of a .
Diberi $P(-a < z < a) = 0.7698$, cari nilai a .

[3 marks]
[3 markah]

Answer / *Jawapan:*

22

3

- 23** Siti had just finished her SPM examination. She applied for a job from a company. The company offered her an initial salary of RM 11 400 per annum with 5% yearly increment from the basic salary. Siti planned to save 30% of her salary for further study after working for 5 years.

Calculate her total savings for her studies after working for 5 years .Give your answer correct to the nearest RM.

Siti baru saja selesai menduduki peperiksaan SPM. Dia memohon pekerjaan daripada sebuah syarikat. Syarikat tersebut menawarkan gaji permulaan sebanyak RM 11 400 setahun dengan 5% kenaikan gaji tahunan daripada gaji pokok. Siti bercadang untuk menyimpan 30% daripada gajinya untuk melanjutkan pelajaran selepas bekerja selama 5 tahun.

Hitung jumlah simpanan untuk pengajiannya selepas bekerja selama 5 tahun . Berikan jawapan anda betul kepada RM terhampir.

[4 marks]

[4 markah]

Answer / Jawapan:

23

4

[Lihat halaman sebelah

For
Examiner's
Use

24

Diagram 24 shows the graph of a binomial distribution of X .
Rajah 24 menunjukkan graf taburan binomial X .

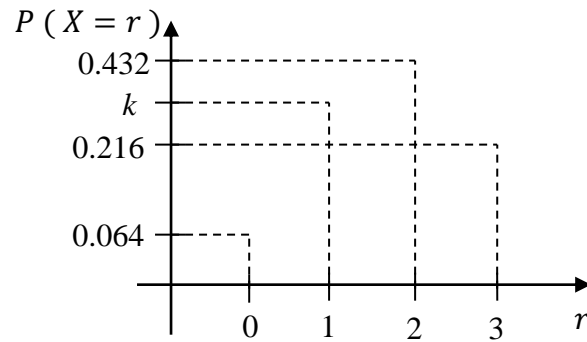


Diagram 24
Rajah 24

Find
Cari

- (a) $P(X \geq 2)$,
(b) the value of k .
nilai k .

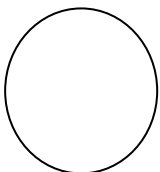
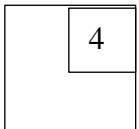
[4 marks]
[4 markah]

Answer / *Jawapan:*

(a)

(b)

24



- 25** Given the roots of the equation $x^2 - 10x + p = 0$ are in the ratio of 2: 3.
Find the value of p .

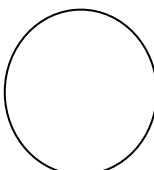
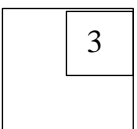
*Diberi punca-punca bagi persamaan $x^2 - 10x + p = 0$ adalah dalam nisbah 2: 3.
Cari nilai p .*

[3 marks]

[3 markah]

Answer / Jawapan:

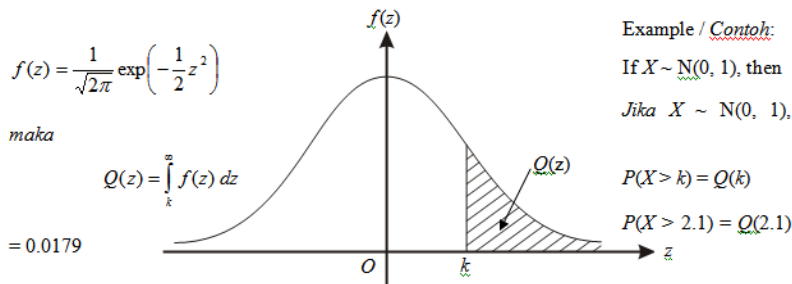
25



END OF QUESTION PAPER
KERTAS PEPRIKSAAN TAMAT

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									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



INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of **25** questions.
*Kertas peperiksaan 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 peperiksaan.
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 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 baharu.
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 questions are shown in brackets.
Markah yang diperuntukkan bagi setiap soalan ditunjukkan dalam kurungan.
8. A list of formulae is provided on pages **2** to **4**.
*Satu senarai rumus disediakan di halaman **2** hingga **4**.*
9. The Upper Tail Probability $Q(z)$ For The Normal Distribution $N(0, 1)$ Table is provided on page **30**.
*Jadual Kebarangkalian Hujung Atas $Q(z)$ Bagi Taburan Normal $N(0, 1)$ disediakan di halaman **30**.*
10. You may use a scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik.
11. Hand in this question paper to the invigilator at the end of the examination.
Serahkan kertas peperiksaan ini kepada pengawas peperiksaan di akhir peperiksaan.