NO. KAD PENGENALAN

ANGKA GILIRAN

SOALAN PRAKTIS BESTARI
PROJEK JAWAB UNTUK JAYA (JUJ) 2018

SIJIL PELAJARAN MALAYSIA
3472/1
ADDITIONAL MATHEMATICS
Kertas 1 / Set 1
2 jam   Dua jam

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Tulis* **nombor kad pengenalan** *dan* **angka giliran** *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.*

	Untuk Kegunaan Pemeriksa	
Kod Pemeriksa:		
Soalan	*Markah Penuh*	*Markah Diperoleh*
1	2	
2	3	
3	3	
4	4	
5	2	
6	4	
7	3	
8	3	
9	3	
10	3	
11	3	
12	4	
13	3	
14	4	
15	4	
16	3	
17	4	
18	3	
19	3	
20	3	
21	4	
22	3	
23	4	
24	3	
25	4	
Jumlah	80	

Kertas soalan ini mengandungi 31 halaman bercetak

[Lihat halaman sebelah

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

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

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

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

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

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

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

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

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

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

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

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

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

CALCULUS
KALKULUS

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

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

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

4   Area under a curve
Luas di bawah lengkung
$= \displaystyle\int_a^b y\ dx$ or *(atau)*
$= \displaystyle\int_a^b x\ dy$

5   Volume of revolution
Isipadu kisaran
$= \displaystyle\int_a^b \pi y^2\ dx$ or *(atau)*
$= \displaystyle\int_a^b \pi x^2\ dy$

STATISTICS
STATISTIK

1     $\bar{x} = \dfrac{\sum x}{N}$

2     $\bar{x} = \dfrac{\sum fx}{\sum f}$

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

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

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

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

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

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

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

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

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

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

13     $\sigma = \sqrt{npq}$

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

GEOMETRY
GEOMETRI

1   Distance / *Jarak*
$= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

2   Midpoint / *Titik tengah*
$(x, y) = \left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2} \right)$

3   A point dividing a segment of a line
Titik yang membahagi suatu tembereng garis
$(x, y) = \left(\dfrac{nx_1 + mx_2}{m + n}, \dfrac{ny_1 + my_2}{m + n} \right)$

4   Area of triangle / *Luas segi tiga*
$= \dfrac{1}{2} \left| (x_1 y_2 + x_2 y_3 + x_3 y_1) - (x_2 y_1 + x_3 y_2 + x_1 y_3) \right|$

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

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

TRIGONOMETRY
TRIGONOMETRI

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

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

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

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 $\cos ec^2 A = 1 + \cot^2 A$
   $\text{kosek}^2 A = 1 + \text{kot}^2 A$

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

7 $\cos 2A = \cos^2 A - \sin^2 A$
   $\quad\quad\;\; = 2\cos^2 A - 1$
   $\quad\quad\;\; = 1 - 2\sin^2 A$

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

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

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

10 $\cos(A \pm B) = \cos A \cos B \mp \sin A \sin B$
   $\text{kos}(A \pm B) = \text{kos} A \text{kos} B \mp \sin A \sin B$

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

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

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*
   $= \dfrac{1}{2}ab\sin C$

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	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

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

$$Q(z) = \int\limits_{k}^{\infty} f(z)\, dz$$
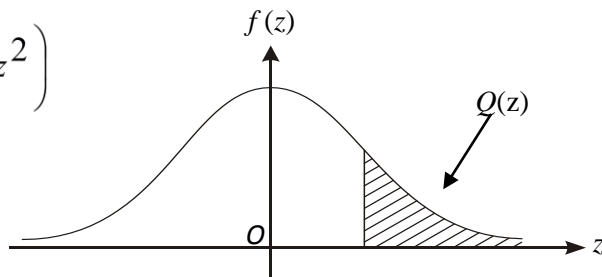
Example / *Contoh*:

If $X \sim N(0, 1)$, then $P(X > k) = Q(k)$

Jika $X \sim N(0, 1)$, *maka* $P(X > k) = Q(k)$

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

1 The relation of set $P = \{3, 6, 9\}$ to set $Q = \{3, 4, 5\}$ is defined by the ordered pairs of $\{(3, 3), (3, 4), (6, 3), (9, 4)\}$.
Hubungan di antara set $P = \{3, 6, 9\}$ kepada set $Q = \{3, 4, 5\}$ boleh ditulis sebagai pasangan bertertib $\{(3, 3), (3, 4), (6, 3), (9, 4)\}$
State
Nyatakan
(a) the images of 3
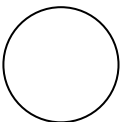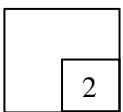*imej bagi* 3
(b) the objects of 4
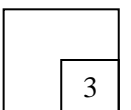*objek bagi* 4

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

Answer / *Jawapan*:

(a)

(b)

1

2

2   Given that $f(x) = 12x + 7$ and $g(x) = 3x + 2$.
        Diberi $f(x) = 12x + 7$ *dan* $g(x) = 3x + 2$.
        Find / *Cari* $fg^{-1}(x)$

For examiner's use only

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

     Answer / *Jawapan*:

2

3

3 Form the quadratic equation from the roots of p and $\dfrac{1}{p}$.

Bentukkan persamaan kuadratik daripada punca-punca p dan $\dfrac{1}{p}$

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

Answer / *Jawapan*:

3

3
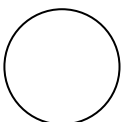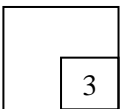
4   Find the range of values of p if the equation $x^2 - 12 = -4p - px$ has real roots.

Cari julat nilai p jika persamaan $x^2 - 12 = -4p - px$ mempunyai punca nyata.

[4 *marks*]

[4 *markah*]

Answer / *Jawapan*:

4

4

5   Given the quadratic function $f(x) = m - 2(n-x)^2$ has a maximum point of $(6, -4)$. Find the value of m and of n.

Diberi fungsi kuadratik $f(x) = m - 2(n-x)^2$ mempunyai titik maksimum $(6, -4)$. Cari nilai bagi m dan nilai bagi n.

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

Answer / *Jawapan*:
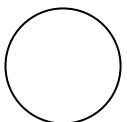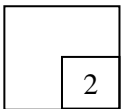
6 Diagram 6 below shows the graph of a quadratic function $y = f(x)$. The straight line $y = -3$ is a tangent to the curve $y = f(x)$.

*R*ajah 6 di bawah menunjukkan graf kuadratik fungsi $y = f(x)$. Satu garis lurus $y = -3$ adalah tangen kepada lengkung $y = f(x)$.
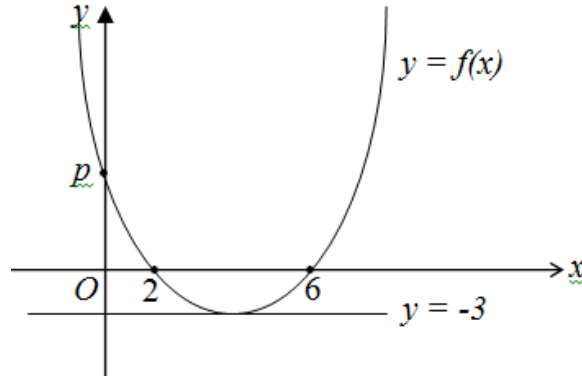
DIAGRAM 6/*Rajah* 6

(a) Express *f(x)* in the form of $(x + b)^2 + c$, where *b* and c are constants.

Ungkapkan f(x) dalam sebutan $(x + b)^2 + c$*, di mana b dan c adalah pemalar.*

(b) Find the value of *p*,
Cari nilai bagi p,

(c) State the equations of axis of symmetry.
Nyatakan persamaan paksi simetri

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

Answer / *Jawapan*:

6

4
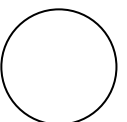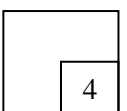
SULIT

3472/1

7   Find the value *a* if
     Carikan nilai a jika

$$\frac{a^{\frac{8}{15}}}{a^{\frac{1}{5}}} = 3$$

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

Answer / *Jawapan*:

3
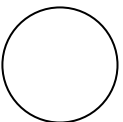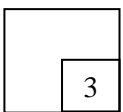
8   Solve the equation
     Selesaikan persamaan

$$\log_3 6 - \log_9 (x-2) = 2$$

     Answer / *Jawapan*:

For examiner's use only

8

3

9   Solve the equation:
   Selesaikan persamaan:

$$2^{x-2}(3^x) = 4$$

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

Answer / *Jawapan*:
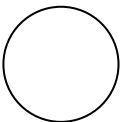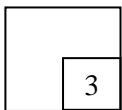
10

$$6\frac{2}{5},\ p,\ q,\ ....,13\frac{3}{5}.$$

The sum of *n* terms of an arithmetic progression is 250. Find the value of *n*.
Hasil tambah n sebutan suatu janjang aritmetik di atas adalah 250. *Cari nilai bagi n.*

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

Answer / *Jawapan*:

10

3
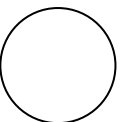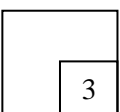
11 A sequence number of arithmetic progression and geometric progression has the same first term is *p*. The ninth term for arithmetic progression is *3p* and the common difference and the common ratio is 0.5. It is found that 20 times the sum of the fifth term for the geometric progression sequence is the same as the *n*th term for the arithmetic progression sequence. Find the value of *n*.

Satu jujukan nombor janjang aritmetik dan janjang geometri mempunyai sebutan pertama yang sama iaitu p. Sebutan kesembilan bagi janjang aritemtik adalah 3p dan beza sepunya serta nisbah sepunya adalah 0.5. Didapati 20 kali hasil tambah sebutan kelima bagi jujukan janjang geometri adalah sama dengan sebutan ke-n bagi jujukan janjang aritmetik itu. Cari nilai bagi n.

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

Answer / *Jawapan* :

11

3
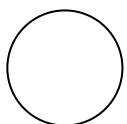
12 An experiment was made on a certain type of bacteria in a particular solution. There was an increase of 15% more than the previous 30 minutes. If there are 1 000 bacteria at 8:00 am Monday, calculate at the time of the number of bacteria reaches 1 000 000 bacteria in the solution.

Satu ujikaji dibuat ke atas sejenis bakteria dalam larutan tertentu. Didapati pertambahan 15% lebih banyak daripada 30 minit sebelumnya. Jika terdapat 1 000 bakteria pada jam 8.00 pagi hari Isnin, hitung pada pukul berapakah bilangan bakteria mencecah 1 000 000 bakteria dalam larutan tersebut.

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

Answer / *Jawapan* :

12

4

13
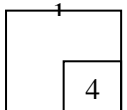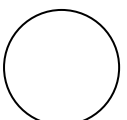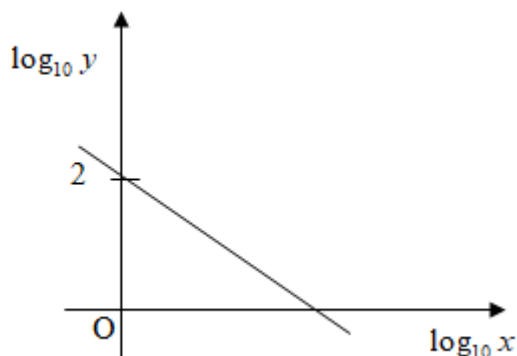
Diagram 13 / *Rajah* 13

The variable x and y are related by the equation $y = \dfrac{p}{x^5}$, where m is a constant.

Diagram 13 shows the straight line graph obtained by plotting $\log_{10} y$ against $\log_{10} x$.

Pemboleh ubah x dan y dihubungkan oleh persamaan $y = \dfrac{p}{x^5}$, dengan keadaan

m ialah pemalar. Rajah 13 menunjukkan graf garis lurus yang diperoleh dengan
memplot $\log_{10} y$ melawan $\log_{10} x$.

(a)   Express the equation $y = \dfrac{p}{x^5}$ in its linear form used to obtain the straight line
        graph shown in Diagram 13.

        Ungkapkan persamaan $y = \dfrac{p}{x^5}$ dalam bentuk linear yang digunakan untuk

        memperoleh graf garis lurus seperti ditunjukkan dalam Rajah 13.

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

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

Answer / *Jawapan*:

13

3
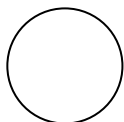
14
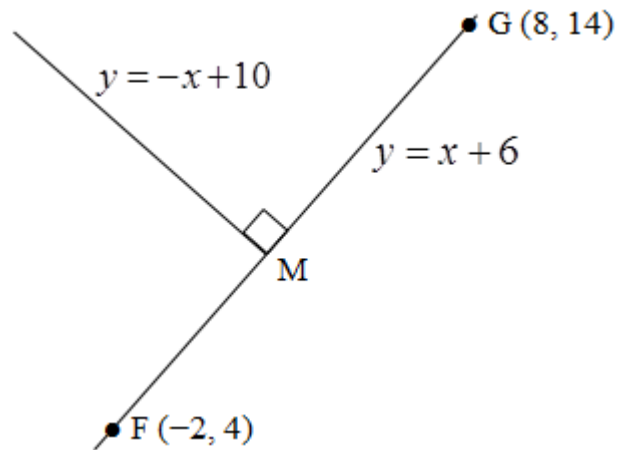
Diagram 14 / *Rajah* 14

Diagram 14 shows the point M divides the line segment joining F(-2,4) and G(8,14) internally in the ratio p:q. find the values of p and q.

Rajah 14 *menunjukkan titik M membahagikan tembereng garis yang menyambungkan F(-2,4) dan G(8,14) dengan nisbah p:q. Cari nilai bagi p dan bagi q.*

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

Answer / *Jawapan*:

14

4
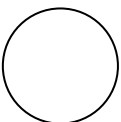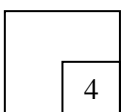
15   Given $\underline{a} = \begin{pmatrix} 6 \\ 8 \end{pmatrix}$ and $\underline{b} = \begin{pmatrix} p-2 \\ 4 \end{pmatrix}$, find

Diberi $\underline{a} = \begin{pmatrix} 6 \\ 8 \end{pmatrix}$ *dan* $\underline{b} = \begin{pmatrix} p-2 \\ 4 \end{pmatrix}$, *cari*

(a)   the magnitude of unit vektor in the direction of $\underline{a}$
       magnitud *vektor unit dalam arah* $\underline{a}$

(b)   the value of p such as $\underline{a}$ and $\underline{b}$ were parallel.
       nilai bagi p *dengan keadaan* $\underline{a}$ *dan* $\underline{b}$ *adalah selari.*

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

15

4
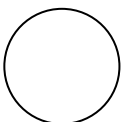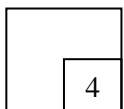
16 Diagram 16 shows two sectors, OAB and OCD with centre O.
    Rajah 16 *menunjukkan dua sektor, OAB dan OCD berpusat O.*
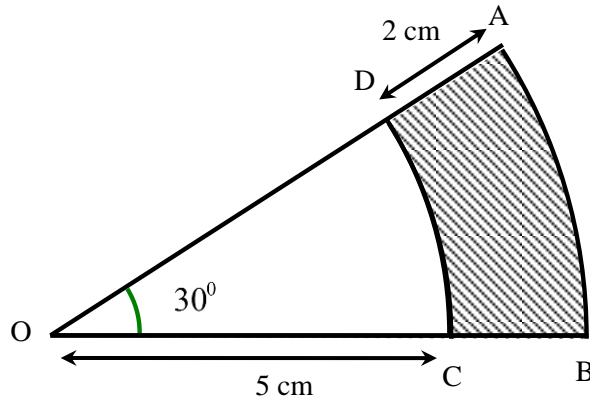
Diagram 16 / *Rajah* 16

Find the area of the shaded region ABCD.

Cari luas bagi rantau berlorek ABCD.

[Use / *guna* $\pi = 3.142$]

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

Answer / *Jawapan*:

16

3
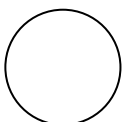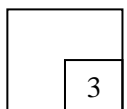
17 Solve the equation
Selesaikan persamaan

$$4\sin^2\left(\frac{\theta}{2}\right) + 8\cos\left(\frac{\theta}{2}\right) - 7 = 0$$

for / *untuk* $0^0 \le \theta \le 360^0$

[4 marks]
[4 markah]
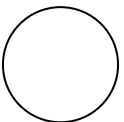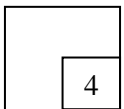
Answer / *Jawapan*:

18   Given that $\dfrac{d}{dx}\left(\dfrac{2x-3}{x+5}\right)=\dfrac{k}{(x+5)^n}$. Find the value of k and of n, where k and n are constants.

Diberi bahawa $\dfrac{d}{dx}\left(\dfrac{2x-3}{x+5}\right)=\dfrac{k}{(x+5)^n}$. Cari nilai bagi k dan bagi n, dengan keadaan k dan n ialah pemalar.

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

Answer / *Jawapan*:

18

3
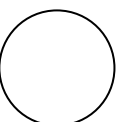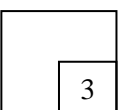
19
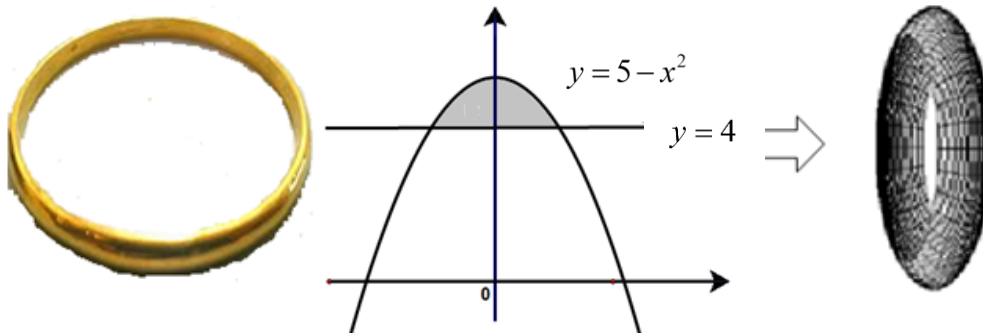
Diagram 19 / *Rajah* 19

Diagram 19 shows a bracelet which can be seen as a solid of revolution formed by revolving the shaded region R by 360° about the x-axis. If the $1cm^3$ volume of the bracelet is equal to 1.35g, what is the total weight of the bracelet?

Rajah 19 *menunjukkan sebentuk gelang yang boleh dilihat sebagai pepejal kisaran yang dibentuk dengan mengkisarkan rantau berlorek R sebanyak* 360° *pada paksi-x. Jika* 1 cm^3 *isipadu gelang tersebut bersamaan* 1.35g, *berapakah jumlah berat gelang itu.* [Use / *guna* $\pi = 3.142$]

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

Answer / *Jawapan*:

19

3
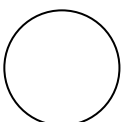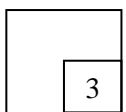
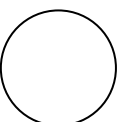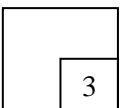20 Find the equation of the curve that has a gradient function $x^2(2x-1)$ and passes through the point $(1, 2)$

Cari persamaan bagi lengkung yang mempunyai fungsi kecerunan $x^2(2x-1)$ dan melalui titik $(1, 2)$.

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

Answer / *Jawapan*:

20

3

21   Table 21 shows the monthly income earned by an employee of a printing company MZ Enterprise.

Jadual 21 menunjukkan pendapatan bulanan yang diperoleh oleh pekerja sebuah syarikat percetakan MZ Enterprise.

| Position *Jawatan*	Number of employee *Bilangan pekerja*	Income (RM) per head *Pendapatan (RM) per orang*
Supervisor / *Penyelia*	1	3500
Marketing Executive *Eksekutif Pemasaran*	1	2500
Graphic Designer *Pereka Grafik*	2	2800
Accountant / *Akauntan*	1	3000
Clerk / *Kerani*	3	x

Table 21 / *Jadual 21*

(a)   Find the value of x, if the mean of the employee's income is RM2275.

Cari nilai bagi x, jika min pendapatan pekerja-pekerja itu ialah RM2275.

(b)   Hence, the company would like to give a bonus to all employees of RM350. Calculate the new mode for the employee's income.

Seterusnya, syarikat ingin memberi bonus kepada semua pekerja sebanyak RM350. Hitung mod baru bagi pendapatan pekerja syarikat itu.

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

Answer / *Jawapan* :

21

4
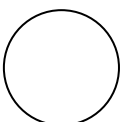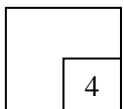
22 (a) State the value of $^{x}C_{x}$.

   Nyatakan nilai $^{x}C_{x}$.

(b) A question paper consist of part A and part B. Each part contains 5 questions. Calculate the number of different ways if a student needs to choose 3 questions from part A and 2 questions from part B.

   Satu kertas soalan terdiri daripada bahagian A dan bahagian B. Setiap bahagian mengandungi 5 soalan. Hitungkan bilangan cara yang berlainan jika seorang pelajar perlu memilih 3 soalan daripada bahagian A dan 2 soalan daripada bahagian B.

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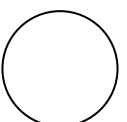[3 *markah*]

Answer / *Jawapan*:

(a)

(b)

22

3
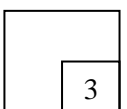
23   A five digit serial numbering system has been created by an NGO organization to be given to the recipient of financial special contribution. The recipients of the contribution will receive a card that has been printed with the serial numbers without repeating. The five digits that make up the serial numbers are 1, 4, 6, 7, and 9. If each permutation of the digits are listed in increasing order, how many percent of cards that end with digit 4?

Suatu sistem penomboran siri lima angka telah diwujudkan oleh satu pertubuhan NGO untuk diberikan kepada penerima sumbangan khas kewangan. Penerima-penerima sumbangan akan menerima kad yang telah dicetak dengan nombr-nombor siri tersebut tanpa ulangan. Lima angka yang membentuk nombor-nombor siri tersebut ialah 1, 4, 6, 7 dan 9. Jika pilihatur bagi angka-angka itu disenaraikan dalam tertib menaik, berapa peratuskah kad yang berakhir dengan angka 4?

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

Answer / *Jawapan*:
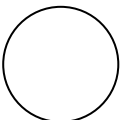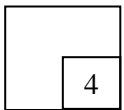
24   Diagram 24 shows the shot target board in square shape with sides of 15 cm in the shooting range. There is a black circle with a diameter of 5 cm in the middle of the target board..

Rajah 24 *menunjukkan papan sasaran tembakan berbentuk segi empat sama bersisi 15 cm yang terdapat di lapang sasar. Terdapat sebuah bulatan hitam berdiameter 5 cm di tengahnya.*
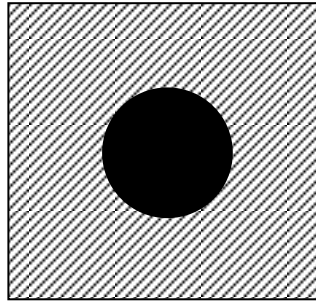

Diagram 24 / *Rajah* 24

Chong is a sharpshooter and his shots are always on target board. Find the probability, Chong shot on the shaded area.
Chong merupakan seorang penembak tepat yang tembakannya sentiasa mengenai papan sasaran tembakan. Cari kebarangkalian, tembakan Chong mengenai kawasan berlorek. [Use / *Gunakan* $\pi = 3.142$]
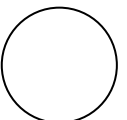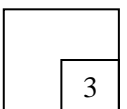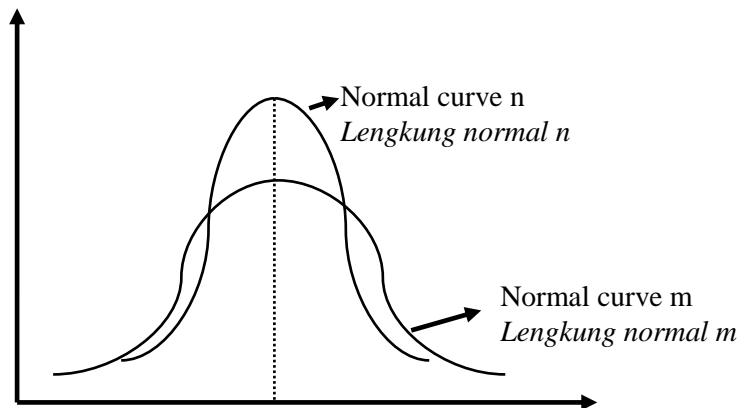
[3 marks]
[3 markah]

Answer / *Jawapan*:

24

3

25 The figure 25 shows two normal curves a and b with $\mu = 4000$
   Rajah 25 menunjukkan dua lengkung normal a dan b dengan nilai $\mu = 4000$

The normal curves represented by the following data:
Lengkung-lengkung normal tersebut diwakili oleh data berikut:

Data	n	p
Alpha *Alfa*	6000	$\frac{2}{3}$
Beta *Beta*	12000	$\frac{1}{3}$

Table 1
Jadual 1

Based on table 1:
Berdasarkan jadual 1*:*

(a) Find the standard deviation of the Alpha data and Beta data
    Cari sisihan piawai bagi data Alfa dan bagi data Beta

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

(b) Determine the appropriate curve data representing the Alpha data and Beta data
    Tentukan lengkung yang sesuai mewakili data Alfa dan data Beta

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

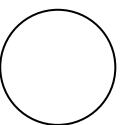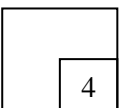Answer / *Jawapan*:

(a)

(b)

25

4

END OF QUESTION PAPER
KERTAS PEPERIKSAAN TAMAT