

Nama :

3472/1
Matematik
Tambahan
Kertas 1
Ogos 2026
2 jam

Logo sekolah masing-masing



SEKOLAH MENENGAH KEBANGSAAN
KOTA TINGGI

PEPERIKSAAN PERCUBAAN SPM 2026

MATEMATIK TAMBAHAN TINGKATAN 5

Kertas 1
Dua jam

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. Tulis **nama** dan **kelas** anda pada ruang yang disediakan.
2. Kertas peperiksaan ini mengandungi **dua** bahagian: **Bahagian A** dan **Bahagian B**.
3. Jawapan hendaklah ditulis pada ruang jawapan yang disediakan di dalam kertas peperiksaan ini.
4. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
5. Kerja mengira anda mesti ditunjukkan.
6. **Kertas peperiksaan ini hendaklah** diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.

SOALAN	MARKAH PENUH	MARKAH DIPEROLEH
BAHAGIAN A		
1	6	
2	6	
3	5	
4	4	
5	6	
6	6	
7	3	
8	5	
9	4	
10	7	
11	6	
12	6	
JUMLAH	64	
BAHAGIAN B		
13	8	
14	8	
15	8	
JUMLAH	16	
JUMLAH MARKAH		

RUMUS
FORMULAE

- | | |
|--|--|
| <p>1 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$</p> <p>2 $a^m \times a^n = a^{m+n}$</p> <p>3 $a^m \div a^n = a^{m-n}$</p> <p>4 $(a^m)^n = a^{mn}$</p> <p>5 $\log_a mn = \log_a m + \log_a n$</p> <p>6 $\log_a \frac{m}{n} = \log_a m - \log_a n$</p> <p>7 $\log_a m^n = n \log_a m$</p> <p>8 $\log_a b = \frac{\log_c b}{\log_c a}$</p> <p>9 $T_n = a + (n - 1)d$</p> <p>10 $S_n = \frac{n}{2} [2a + (n - 1)d]$</p> <p>11 $T_n = ar^{n-1}$</p> <p>12 $S_n = \frac{a(1-r^n)}{1-r} = \frac{a(r^n-1)}{r-1}, r \neq 1$</p> <p>13 $S_\infty = \frac{a}{1-r}, r < 1$</p> <p>14 $y = uv, \frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$</p> <p>15 $y = \frac{u}{v}, \frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$</p> <p>16 $\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$</p> <p>17 Luas di bawah lengkung
<i>Area under a curve</i>
$= \int_a^b y \, dx$ atau (or)
$= \int_a^b x \, dy$</p> | <p>18 Isi padu kisanan
<i>Volume of revolution</i>
$= \int_a^b \pi y^2 \, dx$ atau (or)
$= \int_a^b \pi x^2 \, dy$</p> <p>19 $I = \frac{Q_1}{Q_0} \times 100$</p> <p>20 $\bar{I} = \frac{\sum I_i W_i}{\sum W_i}$</p> <p>21 ${}^n P_r = \frac{n!}{(n-r)!}$</p> <p>22 ${}^n C_r = \frac{n!}{(n-r)!r!}$</p> <p>23 $P(X = r) = {}^n C_r p^r q^{n-r}, p + q = 1$</p> <p>24 Min / Mean, $\mu = np$</p> <p>25 $\sigma = \sqrt{npq}$</p> <p>26 $z = \frac{X - \mu}{\sigma}$</p> <p>27 Panjang lengkok, $s = j\theta$
<i>Arc length, $s = r\theta$</i></p> <p>28 Luas sektor, $L = \frac{1}{2} j^2 \theta$
<i>Area of sector, $A = \frac{1}{2} r^2 \theta$</i></p> <p>29 $\sin^2 A + \cos^2 A = 1$
$\sin^2 A + \cos^2 A = 1$</p> <p>30 $\sec^2 A = 1 + \tan^2 A$
$\sec^2 A = 1 + \tan^2 A$</p> <p>31 $\operatorname{cosec}^2 A = 1 + \cot^2 A$
$\operatorname{cosec}^2 A = 1 + \cot^2 A$</p> |
|--|--|



$$32 \quad \sin 2A = 2 \sin A \cos A$$

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

$$33 \quad \begin{aligned} \cos 2A &= \cos^2 A - \sin^2 A \\ &= 2 \cos^2 A - 1 \\ &= 1 - 2 \sin^2 A \\ \cos 2A &= \cos^2 A - \sin^2 A \\ &= 2 \cos^2 A - 1 \\ &= 1 - 2 \sin^2 A \end{aligned}$$

$$34 \quad \tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

$$35 \quad \begin{aligned} \sin (A \pm B) &= \sin A \cos B \pm \cos A \sin B \\ \sin (A \pm B) &= \sin A \cos B \pm \cos A \sin B \end{aligned}$$

$$36 \quad \begin{aligned} \cos (A \pm B) &= \cos A \cos B \mp \sin A \sin B \\ \cos (A \pm B) &= \cos A \cos B \mp \sin A \sin B \end{aligned}$$

$$37 \quad \tan (A \pm B) = \frac{\tan A \pm \tan B}{1 \mp \tan A \tan B}$$

$$38 \quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$39 \quad \begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ a^2 &= b^2 + c^2 - 2bc \cos A \end{aligned}$$

$$40 \quad \begin{aligned} &\text{Luas segi tiga / Area of triangle} \\ &= \frac{1}{2} ab \sin C \end{aligned}$$

41 Titik yang membahagi suatu tembereng garis

A point dividing a segment of a line

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

$$42 \quad \begin{aligned} &\text{Luas segi tiga / Area of triangle} \\ &= \frac{1}{2} |(x_1 y_2 + x_2 y_3 + x_3 y_1) - (x_2 y_1 + x_3 y_2 + x_1 y_3)| \end{aligned}$$

$$43 \quad |\underline{r}| = \sqrt{x^2 + y^2}$$

$$44 \quad \hat{r} = \frac{x\hat{i} + y\hat{j}}{\sqrt{x^2 + y^2}}$$

**KEBARANGKALIAN HUJUNG ATAS $Q(z)$ BAGI TABURAN NORMAL $N(0, 1)$
THE UPPER TAIL PROBABILITY $Q(z)$ FOR THE NORMAL DISTRIBUTION $N(0, 1)$**

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

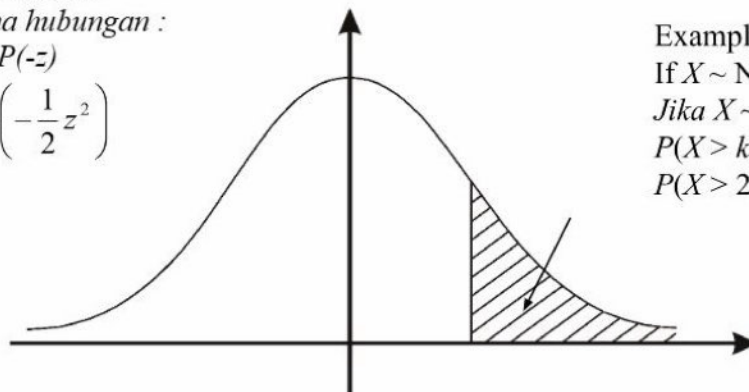
For negative z use relation :

Bagi z negative guna hubungan :

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

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

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



Example/Contoh

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

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

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

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



Bahagian A**Section A**

[64 markah]

[64 marks]

Jawab **semua** soalanAnswer **all** questions

- 1 (a) Titik-titik $M(6k,k)$, $N(a,b)$ dan $P(2a,5b)$ terletak pada suatu garis lurus. Titik N membahagi garis lurus MP dengan nisbah $3:2$. Ungkapkan a dalam sebutan b . [2 markah]
Points $M(6k,k)$, $N(a,b)$ and $P(2a,5b)$ lie on a straight line. Point N divides the line segment MP in the ratio $3:2$. Express a in terms of b . [2 marks]
- (b) Titik P bergerak dengan jaraknya dari titik $A(2,3)$ dan $B(5,-1)$ sentiasa dalam nisbah $3:2$. Cari persamaan lokus bagi titik bergerak P [3 Markah]
A point P moves such that its distances from points $A(2,3)$ and $B(5,-1)$ are always in the ratio $3:2$. Find the equation of the locus of the moving point P . [3 marks]

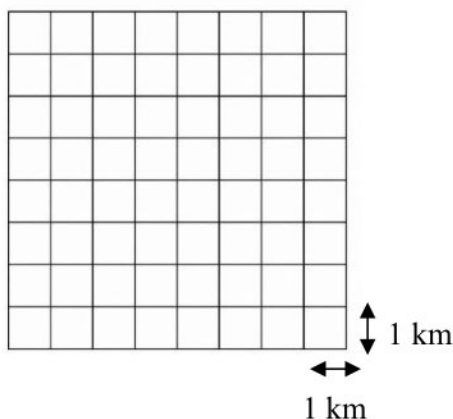
Jawapan / Answer :

- 2 (a) $\overrightarrow{PQ}$ mewakili sesaran 6 km ke kanan.
 $\overrightarrow{PQ}$ represents a displacement of 6 km to the right.

Tentukan sama ada kuantiti berikut ialah kuantiti **vektor** atau **skalar**. Kemudian, lukis dan label dalam grid diberi. [3 markah]

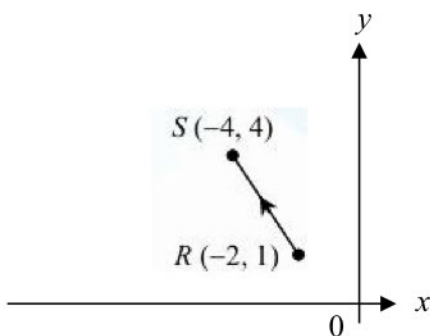
Determine whether the following quantities are **vector** or **scalar** quantities. Then, draw and label them in the given grid. [3 marks]

Jawapan/answer :



- (b) Rajah 1 menunjukkan vektor $\overrightarrow{RS}$ yang dilukis pada satu satah Cartes. Cari **magnitud** dan **arah pergerakan** vektor itu. [3 markah]

The diagram shows a vector $\overrightarrow{RS}$ is drawn on a Cartesian plane. Find **magnitude** and **direction** of the vector. [3 marks]



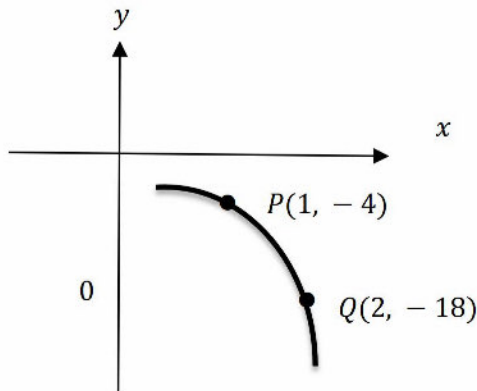
Jawapan/answer :

- 3 (a) Sebutan ke- n bagi suatu jangjang geometri diberi oleh $T_n = p(4)^{n-1}$, dengan keadaan p ialah pemalar. Diberi bahawa hasil tambah dua sebutan pertama ialah 30. Tentukan
- The n -th term of a geometric progression is given by $T_n = p(4)^{n-1}$, where p is a constant. Given that the sum of the first two terms is 30, determine:*
- (i) nilai p ,
the value of p ,
 - (ii) sebutan pertama jangjang tersebut.
the first term of the progression
- [3 markah]
[3 marks]
- (b) Ungkapkan nombor perpuluhan berulang 0.646464... dalam bentuk pecahan termudah dengan menggunakan konsep jangjang geometri. [2 markah]
- Express the recurring decimal 0.646464... in its simplest fractional form by using the concept of geometric progression.* [2 marks]

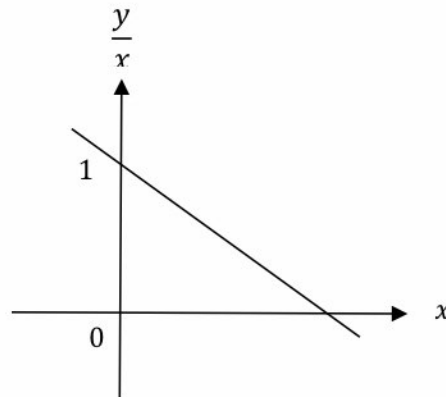
Jawapan/Answer

- 4 Rajah 2(a) menunjukkan sebahagian daripada lengkung $y = ax^2 + bx$, dengan keadaan a dan b ialah pemalar.

Figure 2(a) shows part of the curve $y = ax^2 + bx$, where a and b are constants.



Rajah 2(a)
Diagram 2(a)



Rajah 2(b)
Diagram 2(b)

- (a) Graf bagi lengkung $y = ax^2 + bx$ ditukar kepada bentuk linear, satu garis lurus diperolehi seperti yang ditunjukkan dalam rajah 2(b). Cari

The graph of the curve $y = ax^2 + bx$ is converted into a linear form, resulting in a straight line as shown in figure 2(b). Find

- kecerunan bagi garis lurus
the gradient of a straight line
- pintasan- x
the x -intercept

[3 markah]

[3 marks]

- (b) Lakarkan graf $\frac{y}{x^2}$ melawan $\frac{1}{x}$ dengan menunjukkan titik P dan Q .

[1 markah]

Sketch the graph of $\frac{y}{x^2}$ against $\frac{1}{x}$, showing points P and Q .

[1 mark]

Jawapan/ Answer

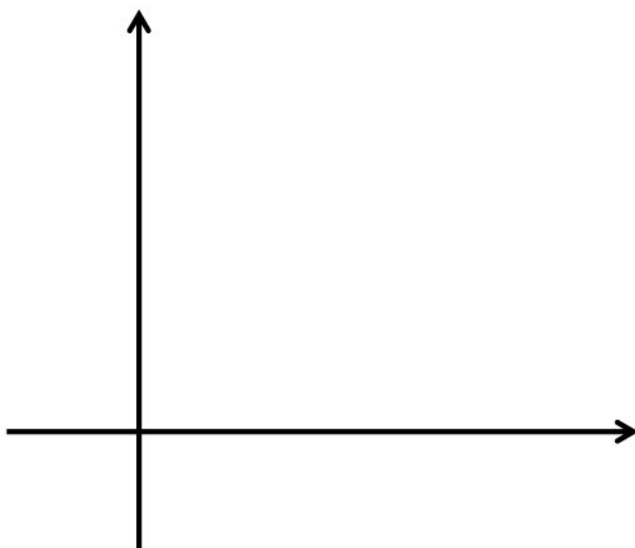
- (a) (i)



Jawapan/ *Answer*

(a)(ii)

(b)



- 5 (a) Persamaan kuadrat $3x^2 + 5x - 2 = 0$ mempunyai punca-punca p dan q , dengan keadaan $p > q$. Cari nilai p dan nilai q . [3 markah]
The quadratic equation $3x^2 + 5x - 2 = 0$ has roots p dan q , where $p > q$. Find the value of p and of q . [3 marks]
- (b) Menggunakan nilai p dan nilai q dari 5 (a), bentukkan persamaan kuadrat yang mempunyai punca-punca $\frac{2}{p}$ dan $\frac{2}{q}$. [3 markah]
Using the values of p and q from 5(a), form the quadratic equation which has roots $\frac{2}{p}$ and $\frac{2}{q}$. [3 marks]

Jawapan/ Answer:

(a)

(b)



6 Diberi pasangan persamaan berikut :

Given the following pairs of equations :

$$x + y = 4$$

$$x^2 + y^2 = 16$$

(a) Lengkapi jadual nilai y bagi persamaan berikut.

Complete the table of y values for the following equation.

x	-4	-3	-2	-1	0	1	2	3	4
$x + y = 4$		7	6	5	4	3	2	1	0
$x^2 + y^2 = 16$	0	± 2.65	± 3.46	± 3.87		± 3.87	± 3.46	± 2.65	0

[2 markah]

[2 marks]

(b) Dengan menggunakan skala 2 cm 1 unit pada kedua-dua paksi, lukis graf

bagi $x + y = 4$ dan $x^2 + y^2 = 16$ dengan domain $-4 \leq x \leq 4$.

[3 markah]

Using a scale of 2 cm for 1 unit on both axes, draw the graph of $x + y = 4$ and $x^2 + y^2 = 16$

with domain $-4 \leq x \leq 4$.

[3 marks]

(c) Seterusnya, tentukan penyelesaian persamaan serentak berikut.

[1 markah]

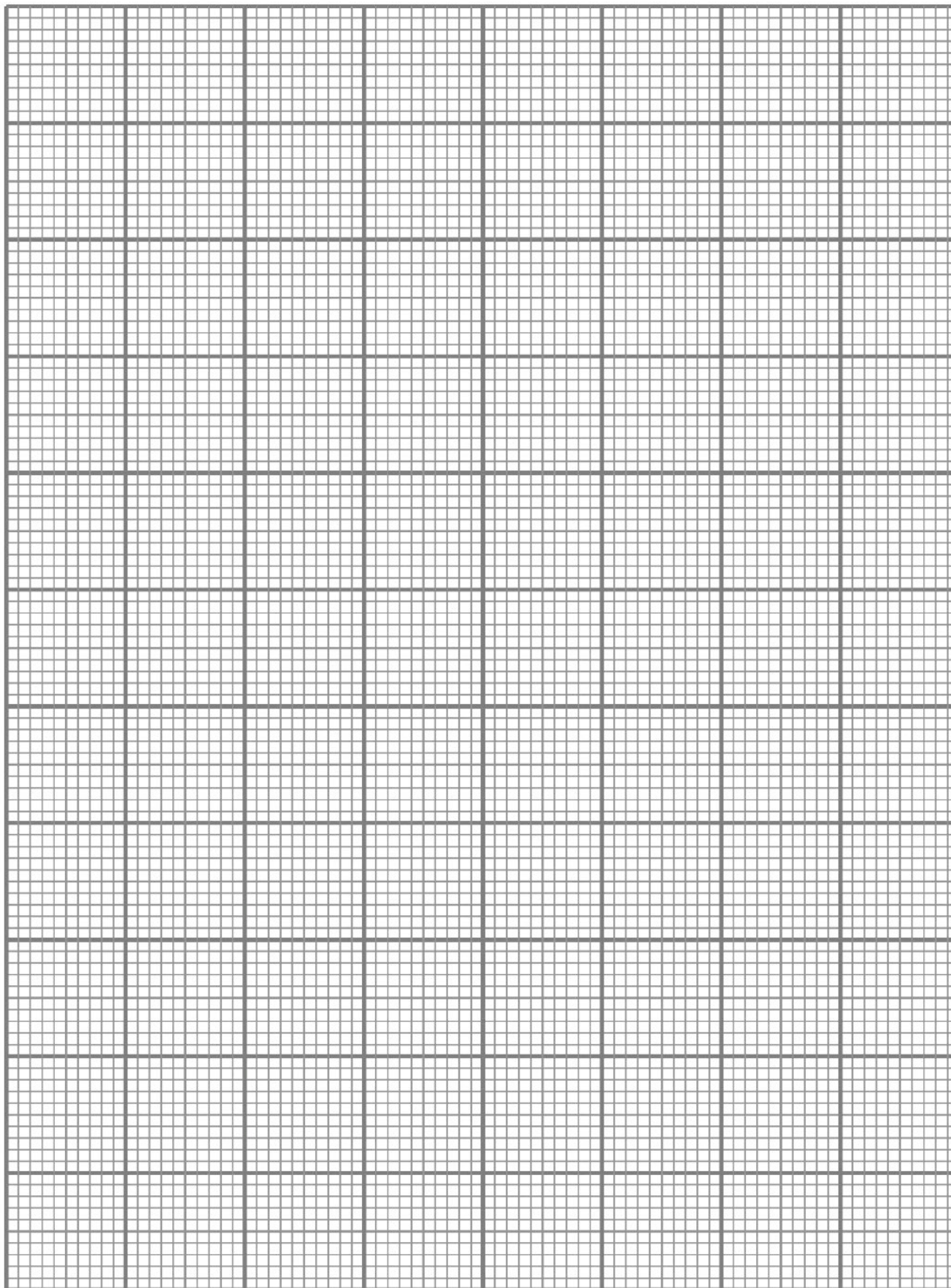
Hence, determine the solution to the simultaneous equations.

[1 mark]

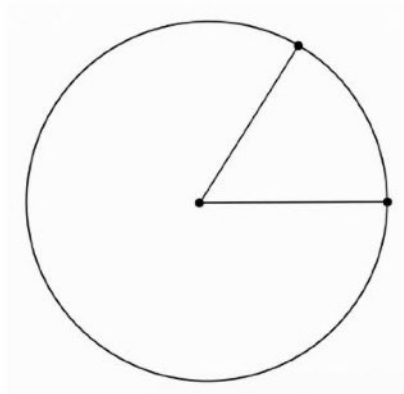
Jawapan /Answer :

Jawapan/*Answer* :

(b)



- 7 (a) Lukis dan labelkan sudut pusat yang bersamaan 1 rad pada Rajah 3 di ruang jawapan. [1 markah]
Draw and label a central angle of 1 rad on the Diagram 3 in the answer space. [1 mark]



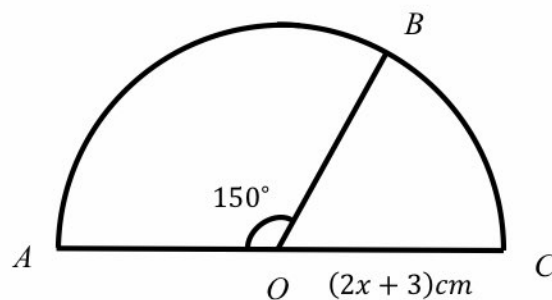
Rajah 3

Diagram 3

- (b) Rajah 4 menunjukkan semibulatan ABC dengan pusat O . Hitung panjang AB dalam sebutan x dan π . [2 markah]

Diagram 4 shows a semicircle ABC with center O . Calculate the length of AB in terms of x and π .

[2 marks]



Rajah 4

Diagram 4

Jawapan/Answer:



- 8 (a) Cari nilai bagi had berikut:

Find the value of the following limit:

$$\text{had}_{x \rightarrow 1} \frac{x^2 - 1}{x - 1}$$
$$\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1}$$

[2 markah]

[2 marks]

- (b) Diberi fungsi $f(x) = 3x^2$. Cari terbitan pertama bagi fungsi tersebut dengan menggunakan prinsip pertama. [3 markah]

Given the function $f(x) = 3x^2$. Find the first derivative of the function using the first principle.

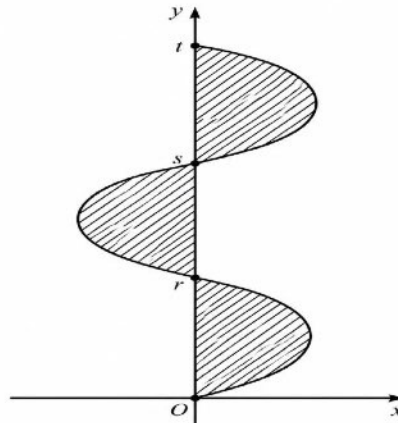
[3 marks]

Jawapan / Answer:

(a)

(b)

- 9 Rajah 5 menunjukkan graf $x = f(y)$.
 Diagram 5 shows the graph $x = f(y)$.



Rajah 5

Diagram 5

Diberi bahawa luas kawasan berlorek ialah 6 unit² dan $\int_0^r f(y)dy = \frac{7}{4}, \int_s^t f(y)dy = 1$.

It is given that area of the shaded region is 6 unit² and $\int_0^r f(y)dy = \frac{7}{4}, \int_s^t f(y)dy = 1$.

Diberi bahawa $s = 2$. Cari nilai bagi

Given that $s = 2$. Find the value of

- (a) $\int_r^s f(y)dy$
- (b) $\int_0^s f(y)dy$
- (c) $\int_0^s \left(2 + \frac{1}{2}f(y)\right)$

[4 markah]

[4 marks]

Jawapan/ Answer:

(a)

(b)

(c)

- 10** (a) Selesaikan persamaan
Solve the equation

$$3^{x+1} - 3^x = 18$$

[3 markah]

[3 marks]

- (b) Sebuah segitiga bersudut tegak PQR dengan lebar $PQ = 3\sqrt{2} + 4$ cm mempunyai keluasan $8\sqrt{2} + 10$ cm². Cari tinggi QR , dalam cm, segitiga tersebut dalam bentuk $a + b\sqrt{2}$. [4 markah]
A right-angled triangle PQR with a width $PQ = 3\sqrt{2} + 4$ cm has an area of $8\sqrt{2} + 10$ cm².
Find the height QR , in cm, of the triangle in the form of $a + b\sqrt{2}$. [4 marks]

Jawapan / Answer:

(a)

(b)



- 11 (a) Sebuah kotak mengandungi 5 biji bola merah dan 4 biji bola biru. Tiga biji bola dipilih secara rawak. Pemboleh ubah rawak X mewakili bilangan bola merah yang dipilih. Nyatakan sama ada X ialah pemboleh ubah rawak diskret atau pemboleh ubah rawak selanjar. Berikan justifikasi.

[1 markah]

A box contains 5 red balls and 4 blue balls. Three balls are selected at random. The random variable X represents the number of red balls selected. State whether X is a discrete random variable or a continuous random variable. Give a justification.

[1 mark]

- (b) Markah ujian Matematik bagi sekumpulan murid bertaburan normal dengan min, μ dan sisihan piawai, σ . Jika 20% murid memperoleh markah lebih daripada 75 dan 10% murid memperoleh markah kurang daripada 55, hitung nilai μ dan nilai σ .

[5 markah]

The Mathematics test scores of a group of students are normally distributed with mean, μ , and standard deviation, σ . If 20% of the students score more than 75 and 10% of the students score less than 55, calculate the value of μ and the value of σ .

Jawapan / Answer:

- 12** (a)(i) Berapakah bilangan cara untuk menyusun 8 orang murid untuk duduk di sebuah meja bulat di dalam sebuah dewan?
How many ways to arrange 8 students to sit in a round table in a hall?
- (ii) Cari bilangan susunan yang mungkin jika huruf-huruf dari perkataan 'STATISTIK' disusun dalam satu barisan.
Find the number of possible arrangements if the letters of the word 'STATISTIK' are arranged in a row.

[3 markah]

[3 marks]

Jawapan/answer :



- (b) Anggerik mempunyai 6 buah buku fiksi dan 4 buah buku bukan fiksi. Anggerik ingin mendermakan 4 buah buku kepada perpustakaan mini di kampungnya. Cari bilangan cara berbeza untuk Anggerik memilih jika

Anggerik has 6 fiction books and 4 non-fiction books. Anggerik wants to donate 4 books to the mini library in her village. Find the number of different ways for Anggerik to choose if

- (i) semua buku yang dipilih ialah buku bukan fiksi
all the books chosen are non-fiction books
- (ii) sekurang-kurang dua buah buku fiksi dipilih.
at least two fiction books are selected.

[3 markah]

[3 marks]

Jawapan/answer :

Bahagian B

Section B

[16 markah]

[16 marks]

Bahagian ini mengandungi **tiga** soalan. Jawab **dua** soalan.

*This section have **three** questions. Answer **two** question.*

- 13** (a) Diberi bahawa $f(x) = |3x - 1|$.
It is given that $f(x) = |3x - 1|$.
- (i) Cari domain jika $f(x) > 5$. [3 markah]
Find the domain if $f(x) > 5$. [3 marks]
- (ii) Lakar graf bagi $f(x) = |3x - 1|$ untuk $-1 \leq x \leq 3$. Seterusnya, nyatakan kodomain yang sepadan. [3 markah]
Sketch the graph of $f(x) = |3x - 1|$ for $-1 \leq x \leq 3$. Hence, state the corresponding codomain. [3 marks]
- (b) Diberi $f(x) = \frac{x}{x+1}$. Cari fungsi $f^n(x)$ dengan keadaan n ialah integer positif. [2 markah]
Given $f(x) = \frac{x}{x+1}$. Find the function of $f^n(x)$ if n is positive integer. [2 marks]

Jawapan/ Answer:

(a)

Jawapan/ *Answer*:

(b)

- 14** Bot A meninggalkan pelabuhan O semasa laut tenang, dengan halaju $V_A = 12\mathbf{i} + 16\mathbf{j} \text{ kmj}^{-1}$. Pada masa yang sama, bot B belayar dari pelabuhan P dengan halaju $V_B = -8\mathbf{i} + 8\mathbf{j} \text{ kmj}^{-1}$. Diberi vektor kedudukan pelabuhan P , $\overrightarrow{OP} = 100\mathbf{i} + 40\mathbf{j}$.
- Boat A left port O when the sea was calm, with the velocity of $V_A = 12\mathbf{i} + 16\mathbf{j} \text{ kmj}^{-1}$. At the same time, boat B left port P with velocity of $V_B = -8\mathbf{i} + 8\mathbf{j} \text{ kmj}^{-1}$. Given that position vector of port P is $\overrightarrow{OP} = 100\mathbf{i} + 40\mathbf{j}$.*

- (a) Selepas t jam, vektor kedudukan bot A ialah $\overrightarrow{OA} = t(12\mathbf{i} + 16\mathbf{j}) \text{ kmj}^{-1}$. Cari vektor kedudukan bagi bot B pada masa itu. [2 markah]
- After t hours, position vector of ship A is $\overrightarrow{OA} = t(12\mathbf{i} + 16\mathbf{j}) \text{ kmj}^{-1}$. Find the position vector of ship B at that time.* [2 marks]
- (b) Tunjukkan bahawa bot A akan memintas bot B dan cari masa apabila keadaan ini berlaku. [6 markah]
- Show that boat A will cross boat B and find the time when this occurs.* [6 marks]

Jawapan / Answer:

(a)

(b)

- 15** (a) Tanpa menggunakan kalkulator, cari nilai bagi kosek 105^0 . [4 markah]
Without using calculator, find the value of kos 75^0 . [4 marks]
- (b) Diberi kos $A = -\frac{5}{13}$, $0^0 < A < 180^0$ dan $\sin B = -\frac{3}{5}$, $90^0 < B < 270^0$. Cari kos $(A - B)$. [4 markah]
Given that kos $A = -\frac{5}{13}$, $0^0 < A < 180^0$ and $\sin B = -\frac{3}{5}$, $90^0 < B < 270^0$. Find kos $(A - B)$ [4 marks]

Jawapan / Answer: