

SECTION A : 50 MARKS

BAHAGIAN A : 50 MARKAH

INSTRUCTION:

This section consists of **TWO (2)** questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi **DUA (2)** soalan. Jawab **SEMUA** soalan.

QUESTION 1

SOALAN 1

CLO 1
C2

a) Based on Figure 1 below, find:

Berdasarkan kepada Rajah 1 di bawah, cari:

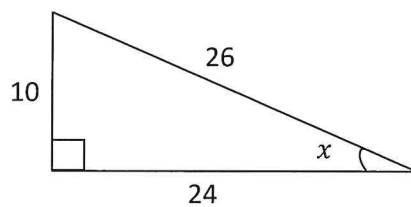


Figure 1

Rajah 1

- | | | |
|------|----------|-------------------------|
| i. | $\sin x$ | [2 marks]
[2 markah] |
| ii. | $\cos x$ | [2 marks]
[2 markah] |
| iii. | $\tan x$ | [2 marks]
[2 markah] |
| iv. | $\sec x$ | [2 marks]
[2 markah] |

- v. cosec x [2 marks]
[2 markah]

CLO 1
C3

- b) Based on Figure 2 below, find:
Berdasarkan kepada Rajah 2 di bawah, cari:

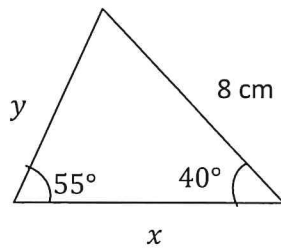


Figure 2

Rajah 2

- i. y [4 marks]
[4 markah]
- ii. x [6 marks]
[6 markah]

CLO 1
C3

- c) Based on Figure 3 below, find the value of z using Cosine Rule.
Berdasarkan kepada Rajah 3 di bawah, cari nilai bagi z menggunakan Petua Kos.

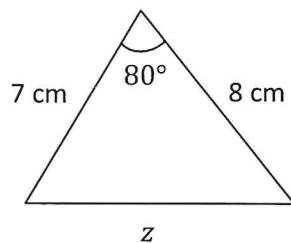


Figure 3

Rajah 3

- [5 marks]
[5 markah]

QUESTION 2

SOALAN 2

CLO 1
C2

a) Convert each of the following angles in radian to degree or vice versa:

Tukarkan setiap sudut berikut dalam radian kepada darjah atau sebaliknya:

i. 2.83 rad [2 marks]

[2 markah]

ii. $\frac{\pi}{2}$ rad [2 marks]

[2 markah]

iii. $\frac{3\pi}{4}$ rad [2 marks]

[2 markah]

iv. 120° [2 marks]

[2 markah]

v. 75° 20' [2 marks]

[2 markah]

CLO 1
C3

b) Solve the following problems:

*Selesaikan masalah - masalah berikut:*i. Find the arc length of s if $r = 8$ cm and $\theta = 1.7$ rad. [2 marks]*Cari panjang lengkok bagi s jika $r = 8$ cm dan* [2 markah] *$\theta = 1.7$ rad.*ii. Find the radius of r if $s = 4.5$ cm and $\theta = 0.75$ rad. [3 marks]*Cari jejari bagi r jika $s = 4.5$ cm dan $\theta = 0.75$ rad.* [3 markah]

- iii. Find the radius of r if $s = 17.28$ cm and $\theta = 220^\circ$. [5 marks]
Cari jejari bagi r jika $s = 17.28$ cm dan $\theta = 220^\circ$. [5 markah]
- CLO 1 c) Calculate the area of segment if $r = 5$ cm and $\theta = 1.6$ rad. [5 marks]
C3 *Kira luas kawasan segmen jika $r = 5$ cm dan $\theta = 1.6$ rad. [5 markah]*

SECTION B : 50 MARKS**BAHAGIAN B : 50 MARKAH****INSTRUCTION:**

This section consists of **THREE (3)** questions. Answer **TWO (2)** questions only.

ARAHAN:

Bahagian ini mengandungi TIGA (3) soalan. Jawab DUA (2) soalan sahaja.

QUESTION 3**SOALAN 3**

CLO 2
C2

a) Find the magnitude of the following vectors:

Cari magnitud bagi vektor – vektor berikut:

i. $\overrightarrow{OA} = 3\mathbf{i}$ [2 marks]
[2 markah]

ii. $\overrightarrow{OB} = 6\mathbf{i} + 8\mathbf{j}$ [4 marks]
[4 markah]

iii. $\overrightarrow{CD} = 5\mathbf{i} - 3\mathbf{j}$ [4 marks]
[4 markah]

- CLO 2 b) Given $\vec{x} = 3\mathbf{i} - 2\mathbf{j}$ and $\vec{y} = -4\mathbf{i} + 7\mathbf{j}$, find:
C3 *Diberi $\vec{x} = 3\mathbf{i} - 2\mathbf{j}$ dan $\vec{y} = -4\mathbf{i} + 7\mathbf{j}$, cari:*
- i. $\vec{x} + \vec{y}$ [2 marks]
[2 markah]
- ii. $2\vec{x} + 5\vec{y}$ [4 marks]
[4 markah]
- iii. $3\vec{y} - 4\vec{x}$ [4 marks]
[4 markah]
- CLO 2 c) Calculate the value of $3p \cdot 2q$ if $p = -4\mathbf{i} - 2\mathbf{j}$ and $q = 2\mathbf{i} + 6\mathbf{j}$. [5 marks]
C3 *Kira nilai bagi $3p \cdot 2q$ jika $p = -4\mathbf{i} - 2\mathbf{j}$ dan $q = 2\mathbf{i} + 6\mathbf{j}$. [5 markah]*

QUESTION 4

SOALAN 4

CLO 2 a) State the definition for each of the following inequalities:

C2

Nyatakan definisi bagi setiap ketaksamaan berikut:

i. $<$ [1 mark]

[1 markah]

ii. $>$ [1 mark]

[1 markah]

iii. \leq [1 mark]

[1 markah]

iv. \geq [1 mark]

[1 markah]

v. $x > 3$ [2 marks]

[2 markah]

vi. $x \leq -3$ [2 marks]

[2 markah]

vii. $-3 \leq x < 3$ [2 marks]

[2 markah]

- CLO 2
C3
- b) Solve the following inequalities:
Selesaikan ketaksamaan – ketaksamaan berikut:
- i. $x + 3 > 2$ [2 marks]
[2 markah]
- ii. $3x - 7 \geq 5$ [4 marks]
[4 markah]
- iii. $3 - 3x < -6$ [4 marks]
[4 markah]
- CLO 2
C3
- c) Find the range of value of p which satisfied the inequalities $2p - 4 \geq 6$ and $p + 2 < 10$. [5 marks]
- Cari julat nilai bagi p yang memenuhi ketaksamaan $2p - 4 \geq 6$ dan $p + 2 < 10$.* [5 markah]

QUESTION 5

SOALAN 5

CLO 2 a) Given $A = \begin{pmatrix} 2 & 3 \\ -1 & 0 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & -1 \\ 2 & 4 \end{pmatrix}$, find:

C2

Diberi $A = \begin{pmatrix} 2 & 3 \\ -1 & 0 \end{pmatrix}$ dan $B = \begin{pmatrix} 1 & -1 \\ 2 & 4 \end{pmatrix}$, cari:

i. $A + B$ [2 marks]

[2 markah]

ii. $A - B$ [2 marks]

[2 markah]

iii. $2B - A$ [3 marks]

[3 markah]

iv. $B - 3A$ [3 marks]

[3 markah]

CLO 2 b) Find the inverse of the following matrices:

C3

Cari matriks songsang bagi matriks – matriks berikut:

i. $A = \begin{pmatrix} 2 & -3 \\ 4 & -5 \end{pmatrix}$ [5 marks]

[5 markah]

ii. $B = \begin{pmatrix} 4 & 8 \\ 2 & 5 \end{pmatrix}$ [5 marks]

[5 markah]

CLO 2 c) Solve the following simultaneous equations: [5 marks]

C3 *Selesaikan persamaan serentak berikut:* [5 markah]

$$3x + 5y = 1$$

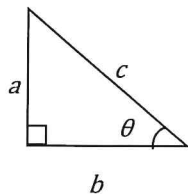
$$x + 4y = -2$$

SOALAN TAMAT

FORMULA SHEET FOR BASIC MATHEMATICS 2 (PBM2014)

TRIGONOMETRY

Pythagoras' Theorem



$$1. \quad c^2 = a^2 + b^2$$

reciprocal function

$$2. \quad \tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$3. \quad \operatorname{cosec} \theta = \frac{1}{\sin \theta}$$

$$4. \quad \sec \theta = \frac{1}{\cos \theta}$$

$$5. \quad \cot \theta = \frac{1}{\tan \theta}$$

Formula of Triangle

6. *Sine Rules;*

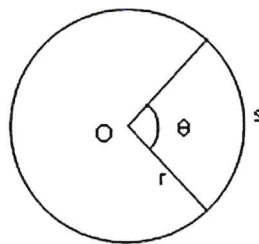
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

7. *Cosine Rules;*

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

$$8. \quad \text{Area of Triangle} = \frac{1}{2} a b \sin C$$

CIRCULAR MEASURE



$$1. \quad \text{Arc Length of a Circle;} \\ s = r\theta$$

2. *Area of a Sector;*

$$A = \frac{1}{2} r^2 \theta$$

3. *Area of a triangle;*

$$A = \frac{1}{2} r^2 \sin \theta$$

4. *Area of a Segment;*

$$A = \frac{1}{2} r^2 \theta - \frac{1}{2} r^2 \sin \theta$$

VECTOR

$$1. \quad \vec{A} \cdot \vec{B} = a_1 a_2 + b_1 b_2 + c_1 c_2$$

$$2. \quad \cos \theta = \frac{\vec{A} \cdot \vec{B}}{|\vec{A}| |\vec{B}|}$$

$$3. \quad |\vec{A}| = \sqrt{x^2 + y^2}$$

MATRIX

Inverse Matrix;

$$A^{-1} = \frac{1}{ad - bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$