

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN MATEMATIK, SAINS & KOMPUTER

PEPERIKSAAN AKHIR
SESI DISEMBER 2017

DBM1032 : ELEMENTARY MATHEMATICS

TARIKH : 09 APRIL 2018
MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)

Kertas ini mengandungi **EMPAT BELAS (14)** halaman bercetak.

Bahagian A: Struktur (3 soalan)

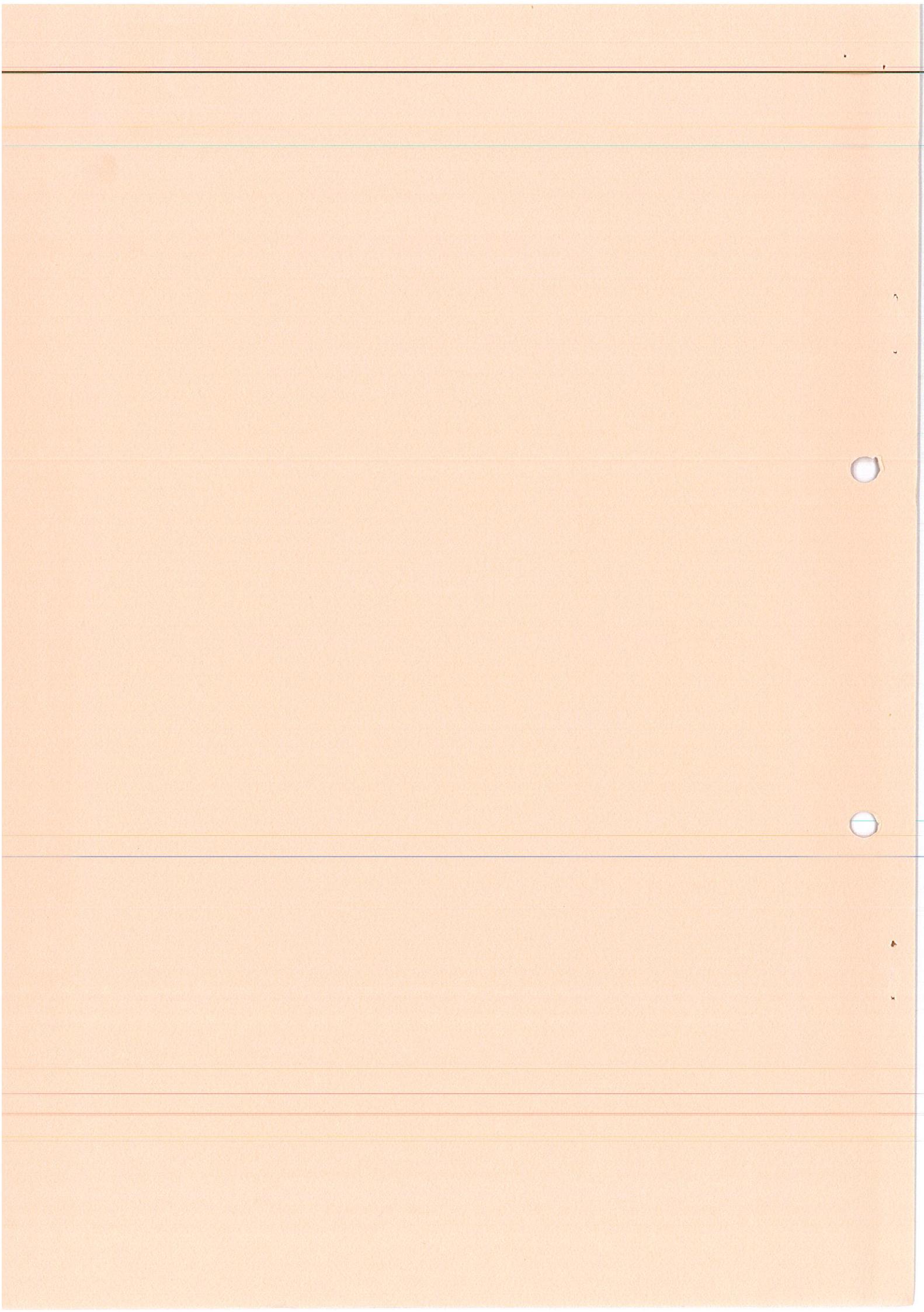
Bahagian B: Struktur (2 soalan)

Dokumen sokongan yang disertakan : Formula

JANGAN BUKA KERTAS SOALANINI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT



SECTION A :75 MARKS**BAHAGIAN A :75 MARKAH****INSTRUCTION:**

This section consists of **THREE (3)** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi **TIGA (3)** soalan berstruktur. Jawab **SEMUA** soalan.

QUESTION 1**SOALAN 1**

CLO 2

C2

- a) Express the following in the simplest form:

Nyatakan yang berikut dalam sebutan teringkas:

i. $\frac{7}{6w} + \frac{1-3x}{12w}$

[5 marks]

[5 markah]

ii. $\left(\frac{5}{v+5} - \frac{4}{v+4} \right) \times \left(\frac{v+4}{v} \right)$

[5 marks]

[5 markah]

CLO 2
C3

b)

- i. Solve the quadratic equation below using factorization method.

Selesaikan persamaan kuadratik di bawah dengan menggunakan kaedah pemfaktoran.

$$2x\left(x - \frac{1}{2}\right) = x^2 - x + 9$$

[5 marks]

[5 markah]

- ii. Solve the quadratic equation below using factorization method.

Selesaikan persamaan kuadratik di bawah dengan menggunakan kaedah pemfaktoran.

$$x(x + 5) = 3(6 - 4x)$$

[5 marks]

[5 markah]

- iii. Solve the quadratic equation below using quadratic formula.

Selesaikan persamaan kuadratik di bawah dengan menggunakan formula kuadratik.

$$(3x - 2)(x + 5) = (x - 6)(x + 4)$$

[5 marks]

[5 markah]

QUESTION 2**SOALAN 2**

CLO 2

C3

a)

- i. Calculate the perimeter of Diagram 2a(i). Use $\pi = 3.142$.

Kira ukur lilit Rajah 2a(i). Guna $\pi = 3.142$.

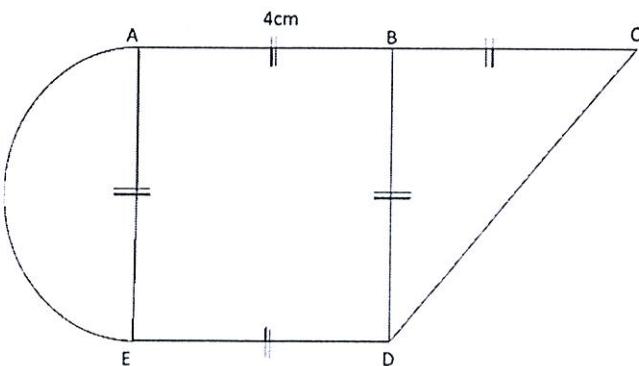


Diagram 2a(i) / Rajah 2a(i)

[5 marks]

[5 markah]

- ii. In the Diagram 2a (ii), M is the midpoint of PQ. Calculate the area of the whole diagram.

Dalam Rajah 2a (ii), M ialah titik tengah PQ. Kira luas keseluruhan rajah berikut.

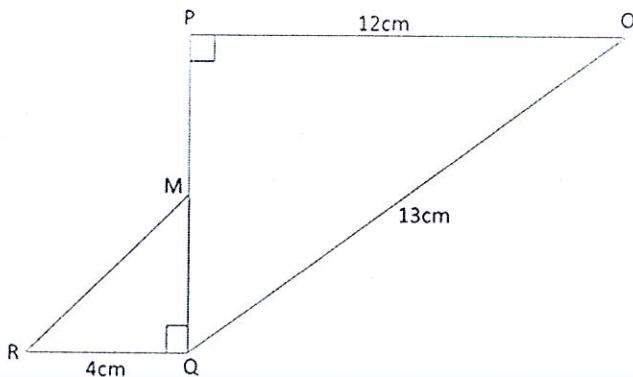


Diagram 2a (ii) / Rajah 2a (ii)

[6 marks]

[6 markah]

- iii. In the Diagram 2a (iii), ABCD is a rectangle. ACD and AEF are right-angled triangle. Calculate the length of AF and FC.

Dalam Rajah 2a (iii), ABCD ialah segi empat tepat. ACD dan AEF adalah segi tiga bersudut tegak. Kira panjang AF dan FC.

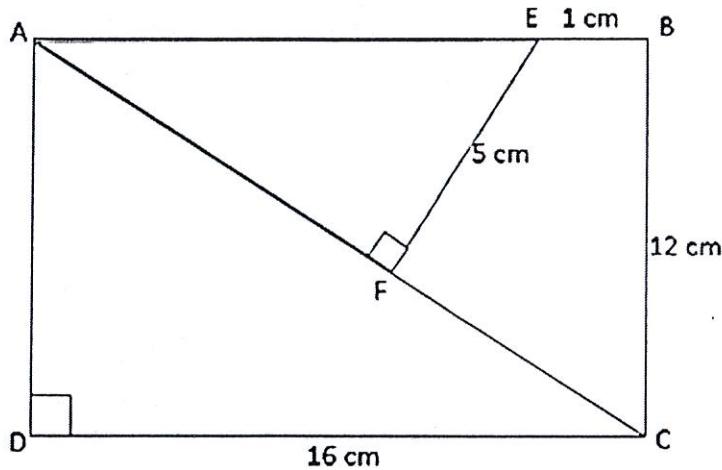


Diagram 2a (iii) / Rajah 2a (iii)

[7 marks]

[7 markah]

- iv. Diagram 2a (iv) shows a composite solid in a shape of 2 cylinders. The bigger cylinder has a diameter of 8 cm and 15 cm height, while the smaller cylinder has a diameter of 2 cm and 20 cm height. Calculate the volume of the composite solid. Use $\pi = \frac{22}{7}$

Rajah 2a (iv), menunjukkan pepejal komposit dalam bentuk 2 silinder. Silinder yang lebih besar mempunyai diameter 8 cm dan berketinggian 15 cm dan silinder yang lebih kecil mempunyai diameter 2 cm dan berketinggian 20 cm.

Kira isipadu keseluruhan pepejal komposit berikut. Guna $\pi = \frac{22}{7}$

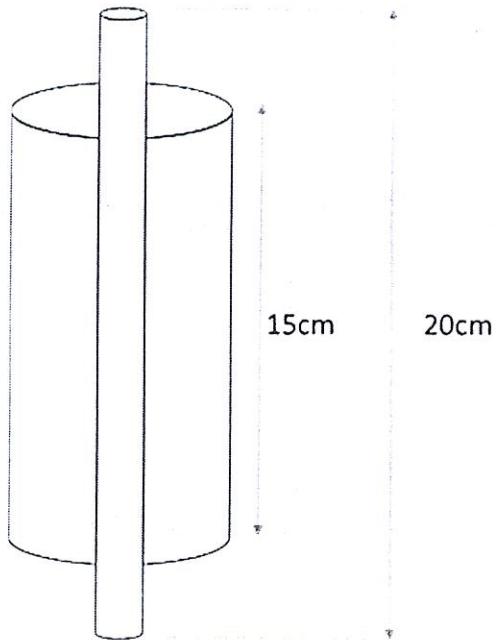


Diagram 2a (iv) / Rajah 2a (iv)

[7 marks]

[7 markah]

QUESTION 3

SOALAN 3

CLO 2

C2

a) Diagram 3(a), ABC is a right angled triangle. Calculate the value of the following:

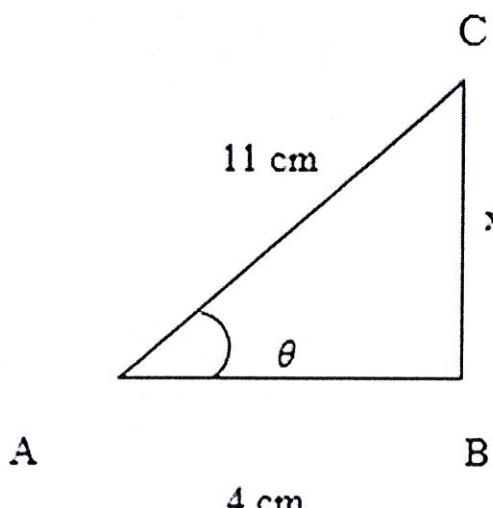
Rajah 3(a), ABC ialah segitiga bersudut tepat. Kira nilai bagi yang berikut:

Diagram 3(a) / Rajah 3(a)

i. $\tan \theta$

[4 marks]

[4 markah]

ii. $\cot \theta$

[3 marks]

[3 markah]

iii. $\cosec \theta$

[3 marks]

[3 markah]

- CLO 2 b) Calculate the value and sketch a diagram to show the angle of the quadrant lies on
C3 the following trigonometric functions :

Kira nilai dan lakarkan rajah untuk menunjukkan kuadran sudut tersebut berada bagi fungsi trigonometri berikut :

i. $\tan (-280^\circ)$

[5 marks]

[5 markah]

ii. $\sec (130^\circ)$

[5 marks]

[5 markah]

iii. $\sin (250^\circ)$

[5 marks]

[5 markah]

SECTION B : 25 MARKS**BAHAGIAN B : 25 MARKAH****INSTRUCTION:**

This section consists of **TWO (2)** structured questions. Answer only **ONE (1)** question.

ARAHAN:

Bahagian ini mengandungi **DUA (2)** soalan berstruktur. Jawab **SATU (1)** soalan sahaja.

QUESTION 4**SOALAN 4**

CLO1

a)

C2

- i. Describe the following types of angle using a suitable diagram:

Huraikan jenis sudut berikut menggunakan gambarajah yang sesuai:

- a. Alternate Angles

Sudut Berselang-seli

[2 marks]

[2 markah]

- b. Corresponding Angles

Sudut Sepadan

[2 marks]

[2 markah]

ii. Calculate the value for x and y based on Diagram 4a(ii). Given that

$$PR = ST \text{ and } SV = TW.$$

Hitung nilai untuk x & y berdasarkan Rajah 4a(ii). Diberi $PR = ST$ dan $SV = TW$.

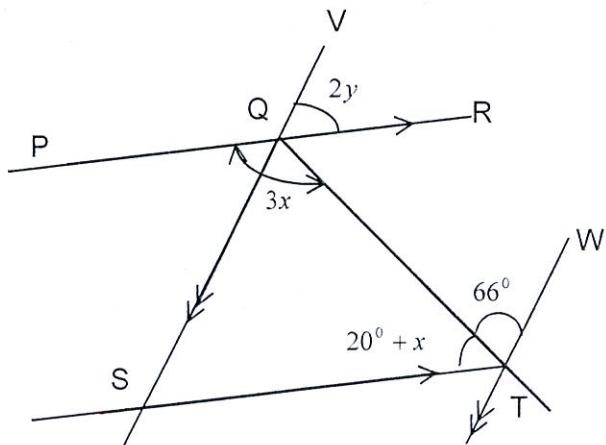


Diagram 4a(ii) / Rajah 4a(ii)

[6 marks]

[6 markah]

CLO1
C3

b)

- i. Based on Diagram 4b(i), O is a centre of the circle and $\angle AOD$ is 74° . Calculate:

Berdasarkan Rajah 4b(i), O adalah pusat kepada bulatan dan $\angle AOD$ adalah 74° . Kirakan:

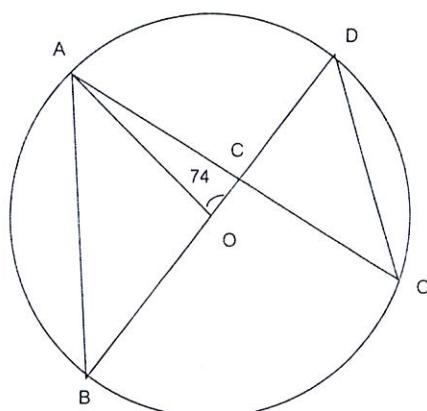


Diagram 4b(i) / Rajah 4b(i)

a. $\angle ACD$

[2 marks]

[2 markah]

b. $\angle OAB$

[4 marks]

[4 markah]

ii. Calculate the value of x , y and z based on Diagram 4b(ii) below:

Hitung nilai bagi x , y dan z berdasarkan Rajah 4b(ii) di bawah:

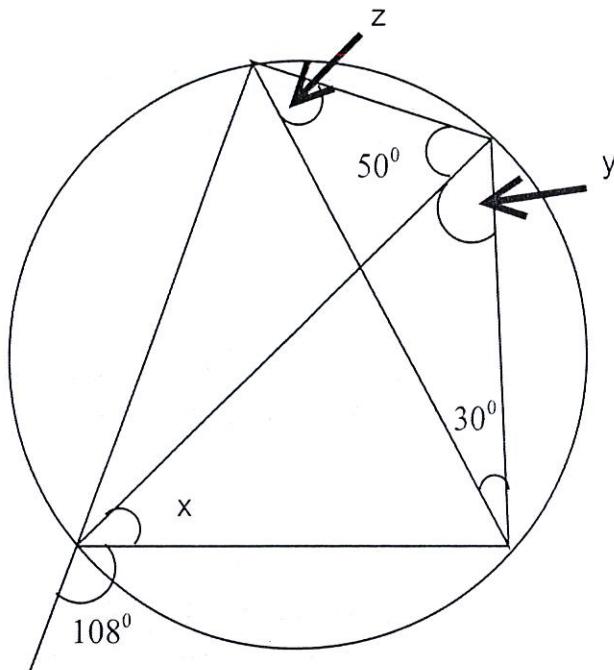


Diagram 4b(ii) / Rajah 4b(ii)

[9 marks]

[9 markah]

QUESTION 5***SOALAN 5***

CLO 1

C2

a)

- i. Diagram 5a(i), STU and SPQ are straight lines. If $ST = 3\text{ cm}$ and $PQ = 1\text{ cm}$, calculate the length of TU and PT.

Rajah 5a(i), STU dan SPQ adalah garis lurus. Jika $ST = 3\text{ cm}$ dan $PQ = 1\text{ cm}$, kira panjang TU dan PT.

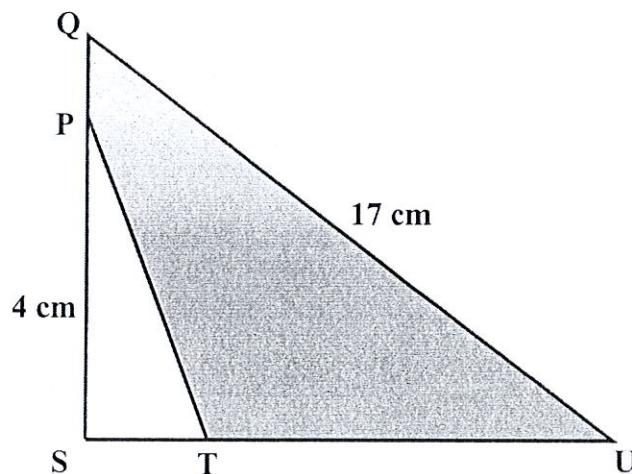


Diagram 5a(i) / Rajah 5a(i)

[6 marks]

[6 markah]

- ii. Convert 2.741 rad and $\frac{3\pi}{5}\text{ rad}$ into degrees.

Tukarkan 2.741 rad dan $\frac{3\pi}{5}\text{ rad}$ dalam darjah.

[4 marks]

[4 markah]

CLO 1
C3

- b) Diagram 5(b), shows a circle PQRS with centre O and a sector QTSU with centre at T. Given TU = 7 cm, OR = 6 cm and length of arc QUS = 13.3 cm. Calculate;

Rajah 5(b), menunjukkan bulatan PQRS dengan pusat O dan sektor QTSU dengan pusat di T. Diberikan TU = 7 cm, OR = 6 cm dan panjang lengkung QUS = 13.3 cm, Hitung;

- i. $\angle QTS$ in degree

$\angle QTS$ dalam darjah

[5 marks]

[5 markah]

- ii. The area of shaded region

Luas kawasan berlorek

[10 marks]

[10 markah]

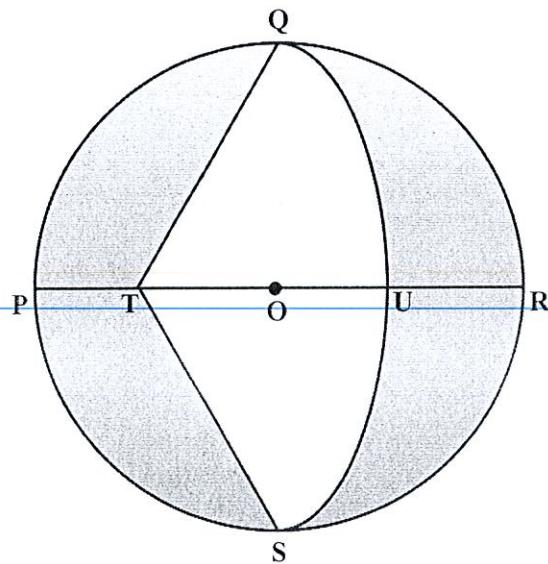


Diagram 5(b) / Rajah 5(b)

SOALAN TAMAT



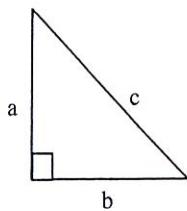
FORMULA SHEET FOR ELEMENTARY MATHEMATICS (DBM1032)

SOLVING QUADRATIC EQUATION

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

TRIGONOMETRY

Pythagoras' Theorem



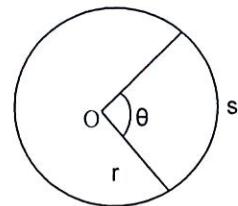
$$c^2 = a^2 + b^2$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

MEASUREMENT

Arc Length of a Circle

$$s = r\theta$$



Area of a Sector

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

Area of a Segment

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

FORMULA OF TRIANGLE

$$\text{Area of Triangle} = \frac{1}{2}ab \sin C$$

SURFACE AREA AND VOLUME

$$\text{Cylinder : } A = 2\pi rh + 2\pi r^2$$

$$V = \pi r^2 h$$

$$\text{Cone : } A = \pi rs + \pi r^2$$

$$V = \frac{1}{3}\pi r^2 h$$

$$\text{Sphere : } A = 4\pi r^2$$

$$V = \frac{4}{3}\pi r^3$$

$$\text{Pyramid : } A = \text{area of four triangles} + \text{area of base}$$

$$V = (1/3) \times (\text{area of base}) \times (\text{height})$$

$$\text{Cuboid : } A = 2(wh + lw + lh)$$

$$V = lwh$$

